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THE physiotherapy REVIEW

Twenty-Fifth Anniversary

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Volume 26 **MARCH-APRIL 1946** **Number 2**

Comparative Strength of Muscles with Similar Function:

A Study on Peripheral Nerve Injuries of the Upper Extremity

Signe Brunnstrom, Lt., U.S.N.R.

By observing the motor dysfunction which appears as a result of injuries to specific peripheral nerves, a considerable amount of information as to relative strength and importance of individual muscles may be obtained. Obviously such studies cannot be carried out on individuals with intact nerve supply, since normally all nerves and muscles function as an integrated whole and not as separate units.

This paper deals with motor dysfunction as observed in cases of paralysis of the spinal accessory, the long thoracic, the axillary, the suprascapular and the musculocutaneous nerves.

Spinal Accessory Nerve

The result of loss of the nerve supply to the trapezius muscle is seen in Figures 1-A—1-D. In the relaxed standing position, the scapula is somewhat downwardly rotated with the inferior angle closer to the spinal column than the superior angle. The entire scapula is lower than on the unaffected side (Fig. 1-A).

During abduction of the arm, the scapulohumeral rhythm is disturbed, but the arm can be abducted without difficulty (Fig. 1-B), the serratus magnus giving satisfactory fixation to the scapula. Arm raising over head is performed with ease (Fig. 1-C), the serratus rotating the scapula. Adduction of the shoulder blades (Fig. 1-D) shows the trapezius contracting vigorously on the left side and missing on the right side. As a whole, there is practically no disability as far as strength and range of motion of abduction is concerned.

Long Thoracic Nerve

With the serratus magnus out of function, the scapula is very unstable. In the relaxed standing position the scapula is "tipped" forward, causing the inferior angle to protrude (Fig. 2-A). The scapula lacks fixation in all motions involving abduction and flexion of the humerus. When the subject places his hand on the opposite shoulder, the vertebral border of the scapula protrudes (Fig. 2-B). Flexion or abduction beyond the horizontal is impossible (Figures 2-C, 2-D). The trapezius can be seen contracting vigorously giving some fixation to the scapula, but without the aid of the serratus it is unable to upward rotate the scapula.

A serratus paralysis causes by far a more serious disability than a trapezius paralysis. These observations confirm previous more detailed studies by this author on the same object.[1]

Axillary Nerve Paralysis

Until recently it has been assumed that the deltoid muscle is the most important muscle in abduction of the arm. Bowen[2] calls the deltoid the large abductor and the supraspinatus a "small associate." He further states that "Loss of one or more of the three portions of the deltoid interferes so seriously with all movements involving elevation of the arm that subjects with this defect have much difficulty in feeding and dressing themselves. Loss of the posterior

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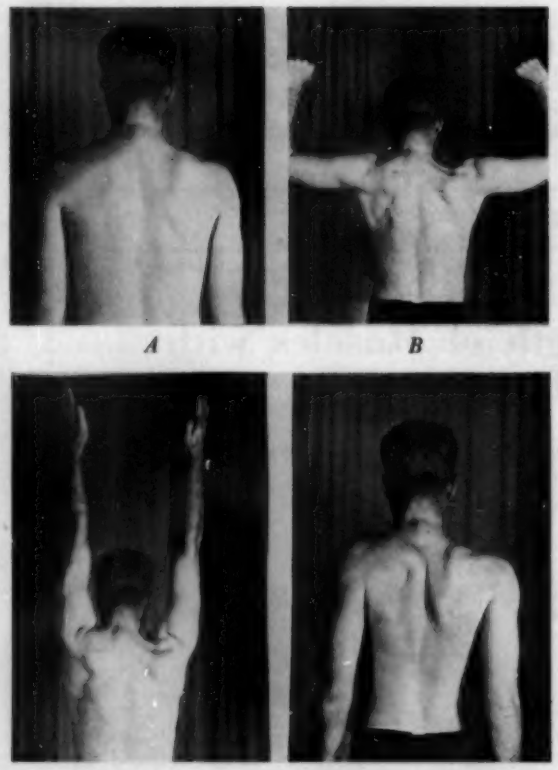
The opinions expressed in this article are those of the writer personally and are in no way the official expression of the Medical Department of the U. S. Navy.



A *B*

C *D*

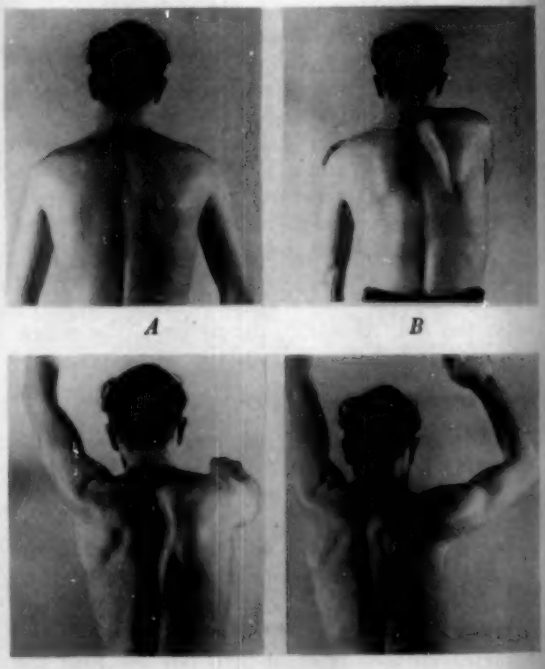
Figure 1. Isolated trapezius paralysis, right.

deltoid makes it impossible to put the hand behind the body at the waist line; if it is the front part the subject cannot bring his hand up to his face or put on his hat without bending the head far forward; if it is either the front or the middle portion, the arm cannot be lifted above the shoulder level in any direction. Few muscles are so important to the most common movements of the arm as the deltoid."

It is interesting to compare Bowen's description of the disability resulting from loss of the deltoid muscle with the picture obtained in the case of a patient with a combined axillary and musculocutaneous nerve injury, causing a complete paralysis of the deltoid, the teres minor, the coracobrachialis, the biceps and the brachialis, seen at the U. S. Naval Hospital, Mare Island, California, in June 1945.

E. W. G., a private in the U.S.M.C., was injured on Okinawa on May 14, 1945 by a 2.5 caliber Jap sniper bullet. Pvt. G. was in a crouching position, reading a map spread out on the ground, when he was hit. The bullet entered the lower scapular region posteriorly and made its exit anteriorly just below the clavicle, as seen in Figure 3-A. The initial stage of complete paralysis of the entire left upper extremity lasted only a few days, after which time there was a gradual recovery of all muscles, except those supplied by the axillary and by the musculocutaneous nerves. When the patient was examined at Mare Island on June 11th, the picture was well defined. Clinically there was a complete paralysis of the deltoid, the teres minor, the coracobrachialis and the biceps; the brachialis likewise was paralyzed except for a part of the lateral portion. (The activity in these fibers was attributed to the double nerve supply of the brachialis, which receives a small motor nerve branch from the radial nerve.) The serratus magnus and the trapezius muscles were unaffected.

Electrical examination given on July 6th revealed a full R. D. of the left axillary nerve.



A *B*

C *D*

Figure 2. Isolated serratus paralysis, right.

No response was obtained from the nerve, neither with the galvanic nor with the faradic current. (The right axillary nerve responded to one milliampere using either current.) Galvanic stimulation directly to the deltoid muscle elicited a typical sluggish contraction with longitudinal reaction toward the origin of the muscle.

There was no reversal of the polar formula, however.

The patient experienced no difficulty in flexing or abducting the arm, and he could reach overhead with ease. An astonishing amount of resistance to the motion of the abduction could be given. During the entire motion of abduction, the deltoid was completely inactive. The motions of flexion and extension, internal and external rotation of the humerus could be performed at various levels of abduction, but at no time could any part of the deltoid be seen or felt contracting. In complete internal rotation the arm dropped about 20 degrees. Hyperextension of the arm was the only definitely weak motion but,

A *B*

Figure 3. Isolated deltoid paralysis, left.

nevertheless, could be performed 36 degrees on the injured as compared to 67 degrees on the uninjured side. The patient had no difficulty in placing the hand in the small of his back.

Figure 3-B shows the subject with arms abducted and externally rotated. Note that this picture does not indicate the point to which the arms could be abducted (abduction was complete) but was chosen as the position best suitable for showing the contour of the deltoid. On the right, the uninjured side, the contraction of the middle and posterior portions of the deltoid can be seen clearly. The left, the injured side, shows the flaccid condition of the deltoid.

In recent publications by Staples and Watkins[3] and by Meadoff and Gray[4] reference is made to the ability of patients with deltoid paralysis to compensate by using other muscles for abduction. The supplementary muscles of abduction are given as the long head of the biceps, the coracobrachialis, the pectoralis major, the supraspinatus and the infraspinatus, the three former muscles acting mainly when the arm is in external rotation.

It should be noted that the patient seen by this writer, in addition to his deltoid paralysis, also had a paralysis of the coracobrachialis and the biceps. Furthermore the pectoralis major (by observation and palpation) did not contract either during abduction or during flexion. The infraspinatus, although important as a stabilizer, is not an abductor proper. The conclusion, therefore, was drawn that in this case the supraspinatus alone was responsible for abduction.

To evaluate the comparative strength of the deltoid and the supraspinatus muscles, the subject was tested for strength in abduction on the injured as well as on the uninjured side in the following manner:

Both arms were raised to a horizontal position with the elbows flexed to 90 degrees and the forearms in the horizontal plane. This position, rather than the abducted and externally rotated position, was chosen in order to minimize the action of the supplementary muscles of abduction on the unaffected side. A leather cuff was applied around the arm as close to the elbow as possible. To this cuff, weights were attached, hanging perpendicularly to the arm. The subject was given several trials, being allowed to rest long enough between trials to avoid fatigue. He was requested to hold the arms abducted against the pull of the weights but not to lift the weights. Care was taken to maintain the body erect and to avoid undue elevation of the shoulder girdle. On the right, the uninjured side, representing the combined strength of the deltoid and the supraspinatus, the subject was able to hold the arms abducted with 61 lbs. attached to the cuff. On the left, the injured side, representing the strength of the supraspinatus muscle alone, 29 lbs. was the maximum. It also should be noted that the patient was right-handed, hence, even before the injury, it could be assumed that the right side would be slightly stronger than the left. Since the injury was a recent one (less than one month old) and the patient had been doing no lifting since he was injured, it is unlikely that the left supraspinatus had developed compensatory strength.

With the action of supplementary muscles eliminated and the probability of the development of compensatory strength in the left supraspinatus practically nil, it seems as if a fairly true picture of the comparative strength and importance of the two muscles was obtained. In this individual the strength of the supraspinatus in abduction equaled that of the deltoid. All ordinary motions could be performed with ease and the patient felt that he was not handicapped in any way except in lifting heavy objects.

Another axillary nerve paralysis case seen in 1944 presented an almost identical picture, but since no lifting tests were given or photographs taken, it cannot be presented in this paper. Although no generalizations can be made until a large number of cases have been investigated, the material available seems to indicate that the importance of the deltoid in abduction as compared to the supraspinatus has been greatly overestimated.

The mechanics of the shoulder motions in an individual with a combined axillary and musculocutaneus nerve paralysis is well worth studying. It is surprising to see that the remaining muscles are fully able to cope with the situation.

It was noted that the anterior portion of the deltoid was not essential for flexion of the arm or for adduction in the horizontal plane; nor was the posterior portion necessary for hyperextension. Both motions were weakened but they were not absent. An attempt was made to determine clinically what muscles acted to compensate for the loss of the deltoid. It was found that:

(1) In flexion as well as in abduction in the horizontal plane, the pectoralis major was inactive, except in the last part of horizontal abduction, that is, after the arm had passed the sagittal plane. With the deltoid, the coracobrachialis and the biceps paralyzed and the pectoralis major inactive, it seemed as if no muscles were left which could perform the motion. It was noted that the serratus magnus pulled the scapula forward in a somewhat irregular fashion while the supraspinatus seemed to be responsible for glenohumeral motion. In reality, the action of the supraspinatus was not more than that of holding the humerus in abduction, while a skilful maneuvering of the scapula made the motion look like true glenohumeral motion.

(2) Hyperextension of the arm was performed by the teres major and the long head of the triceps, the rhomboids and the pectoralis minor giving fixation to the scapula. It was noted that the long head of the triceps contracted vigorously. Full motion of hyperextension could not be obtained, and the motion was considerably weakened.

Combined Suprascapular and Axillary Nerve Paralysis

This condition was seen in a patient who was injured on Guam in July 1944. During night fighting Sgt. Maj. S. G., U.S.M.C., was shot through the left leg, the injury being of such a serious nature that an amputation was necessary three days later. The night of the injury, while seeking medical aid, he became engaged in hand-to-hand fighting. In wrestling with a man who tried to disarm him (the carbine was slung over his right shoulder), his head was pushed vigorously to the left, causing a right brachial plexus injury. The tear apparently occurred in the upper portion of the plexus (5th and 6th cervical nerves), involving both the suprascapular and the axillary nerves.

When Sgt. G. arrived at Mare Island in September 1944, he had a considerable amount of atrophy around the right shoulder and some weakness throughout the right upper extremity. There was a full R.D. of the axillary nerve, and the patient had lost all power of abduction. As far as could be determined, there was a complete paralysis not only of the deltoid but also of the supraspinatus. These muscles did not improve under treatment but muscles of elbow, wrist and fingers gradually returned to normal.

Through consistent muscle training over a long period of time, the patient developed a great deal of power in the biceps. By November 1945 the circumference of the right arm surpassed that of the left uninjured arm by one inch. Although no return of the deltoid or the supraspinatus was found, the patient was able to raise his arm over his head, provided the arm was kept in extreme external rotation (Figs. 4-A and 4-C). With the arm abducted and externally rotated, a weight of 7 lbs. could be overcome (Fig. 4-B). When the arm was in a neutral or inwardly rotated position, true abduction could not be performed (Fig. 4-F). Forward elevation was difficult and was possible to a horizontal position only (Fig. 4-E). Hyperextension was very weak and could be performed only a few degrees (Fig. 4-D).

In analyzing the muscle action in this patient, it was found that the biceps contracted vigorously during abduction. In the externally rotated position, the long head of the biceps was in a good position to perform abduction. Its contour can be seen clearly on Figures 4-A and 4-C. The triceps contracted simultaneously, apparently in an effort to stabilize the elbow, transferring the action of the biceps from the elbow to the shoulder. The arm could be kept abducted as long as the externally rotated position was maintained. A few degrees of interal rotation caused the patient to lose control of his arm, and it fell down to the side.

During forward elevation of the arm (Fig. 4-E), the coracobrachialis assisted the biceps, but the two muscles were unable to bring the

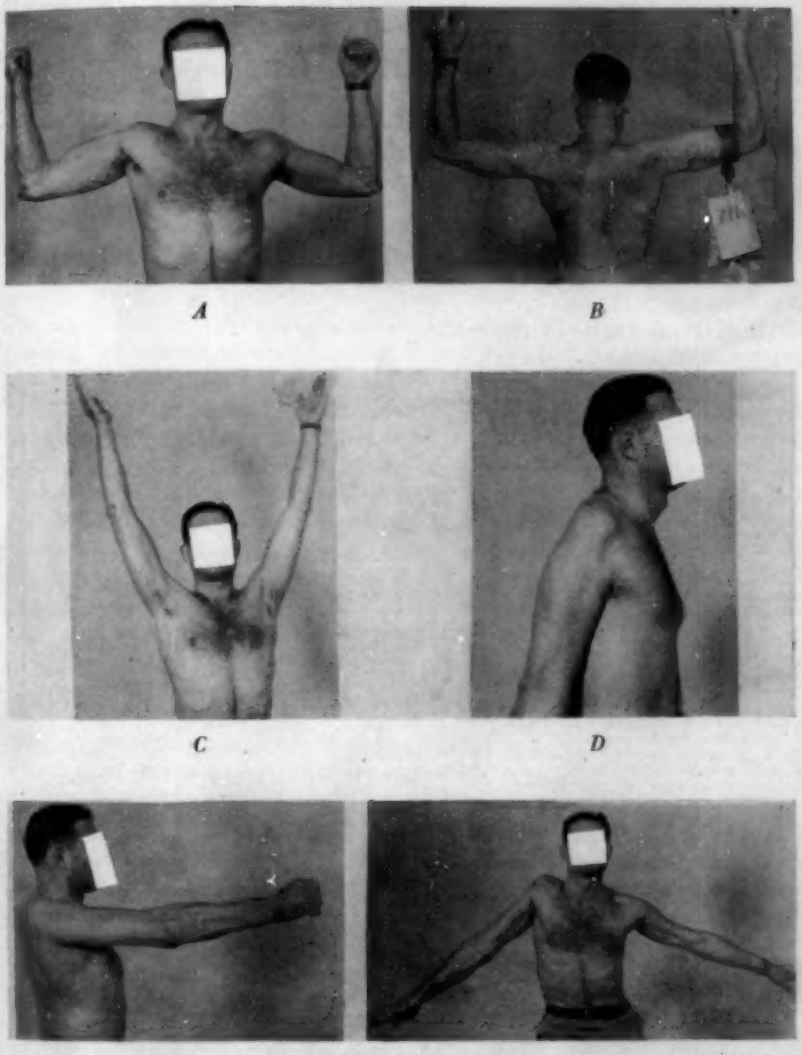


Figure 4. Paralysis of both deltoid and supraspinatus, right.

arms above a horizontal position. External rotation of the arm in this position did not improve the motion. No contraction was observed in the pectoralis major.

Studies on this patient lead to the conclusion that the biceps when well developed can perform abduction of the arm without the aid of the deltoid and the supraspinatus, provided the arm is completely externally rotated.

MUSCULOCUTANEUS NERVE PARALYSIS

An isolated musculocutaneus nerve paralysis, since it affects the biceps and the brachialis, leaving the radial and the median nerve supply intact, gives us an opportunity of studying the strength of these two muscles as compared to the remaining muscles of supination and of flexion. A study was made to answer the following questions:

(1) How strong is the motion of supination when performed by the supinator muscle alone without the aid of the biceps?

(2) How strong is the motion of flexion of the forearm when performed by the brachio-radialis and the pronator teres without the aid of the biceps and the brachialis?

Four subjects with isolated musculocutaneus nerve injuries were available for the study. In one case the paralysis was caused by an aneurism of the brachial artery following a shrapnel injury; in three cases by direct shrapnel or bullet injuries to the nerve and surrounding tissues. Careful clinical and electrical tests were given which indicated that there was a complete paralysis of the biceps and an almost complete paralysis of the brachialis in all four cases. (The lateral portion of the brachialis receives a small motor branch from a radial nerve, explaining the presence of a few active fibers in that region.)

1. *Supination.* Tests for strength in supination were given both to the injured and to the uninjured sides, in the following manner:

The subject was sitting with the forearm on a table, the entire hand protruding over the edge of the table. A wooden mallet was grasped in the hand in such a manner that its end was even with the ulnar side of the hand. At the opposite

end of the handle of the mallet, which measures eleven inches, weights were attached in such a manner as to oppose supination. The subject was asked to supinate the forearm, raising the mallet from 20 degrees below to about 30 degrees above the horizontal. The entire forearm was held in contact with the table, and shoulder and trunk motions were avoided. The results of the tests are seen in Table I.

In cases 1 and 4, complete figures could not be obtained because of additional injuries complicating the picture. In cases 2 and 3, it is seen that the strength of the injured side is about one-third of the well side. In other words, the strength of the biceps was about twice the strength of the supinator in the motion of supination.

TABLE I—*Strength in Supination of Forearm*

Case	*1*	*2*	*3*	*4*
Uninjured side (Supinator and Biceps)	..... (second. hand)	9 lbs. (domin. hand)	13 lbs. (domin. hand)	10 lbs. (domin. hand)
Injured side (Supinator alone)	2 lbs. (domin. hand)	3 lbs. (second. hand)	4 lbs. (second. hand)	..... (second. hand)

TABLE II—*Strength in Flexion of Forearm*

Case	*1*	*2*	*3*	*4*
Uninjured side (All four flexors)	..... (second. hand)	45 lbs. (domin. hand)	46 lbs. (domin. hand)	40 lbs. (domin. hand)
Injured side (Brachioradialis and pronator teres)	9 lbs. (domin. hand)	9 lbs. (second. hand)	11 lbs. (second. hand)	..... (second hand)

It may be argued that right and left handedness should be taken into consideration in this study. To determine the difference in strength in the dominant and in the secondary hand in the motion of supination, nine healthy corpsmen were tested. The difference between the dominant and the secondary hand was found to be as follows: two men were equally strong on both sides; two men showed a difference of one lb. in favor of the dominant hand; four men showed a difference of two lbs. in favor of the dominant hand. It was concluded that the difference in strength due to handedness was too variable in different individuals to justify a correction of figures.

To check the validity of above findings of the comparative strength of the biceps and the supinator, it would be logical to make a study of the strength of the biceps in supination in a series of radial nerve injuries, many of which were available. In such injuries, with the supinator inactive and the biceps intact, theoretically the isolated strength of the biceps in supination could be measured. Attempts to make such measurements, however, were unsuccessful. With the doriflexors of the hand paralyzed, the subjects were unable to get a firm grip of the handle of the mallet. A cock-up splint could not be used because it interfered with supination and there seemed to be no other simple way of maintaining stabilization of the wrist. Such radial nerve injuries as had regained power in the dorsiflexors also had return in the supinator and could not be used for the study.

2. *Forearm Flexion.* With the biceps and the brachialis inactive in a musculocutaneus nerve injury, the strength of the remaining flexors, namely, the brachioradialis and the pronator teres may be tested.

The subjects were tested for strength in elbow flexion both on the injured and on the uninjured side by having them lift weights. The motion began with the elbow completely extended and was not allowed to move posteriorly to the body. The subjects were given several trials with rest in between trials. Table II gives the results. The figures for cases 1 and 4 were incomplete because of other injuries.

In interpreting the figures, it was concluded that case 3 probably was less dominantly right-handed than case 2, and therefore was the better case to evaluate. Approximately one-fourth of the strength in flexion of the forearm was ob-

tained from the brachioradialis and the pronator teres, and three-fourths from the biceps and the brachialis.

In conclusion, it must be pointed out that no claim of scientific accuracy of above experiments is being made. Variables, such as caused by right and left handedness, individual differences in double nerve supply, inaccuracy of the weights of the sandbags used, the possibility of the use of additional supplementary muscles, could not easily be controlled and were disregarded. Furthermore the number of cases tested was insufficient for the drawing of definite conclusions. If a large number of cases in any one of the above categories could be examined, it is to be assumed that a great deal of differences would be found.

SUMMARY

(1) In studying the strength and the importance of the trapezius muscles as compared to that of the serratus in rotation and fixation of the scapula, it was found that the serratus was by far the more important of the two. Loss of the trapezius caused very little disability while loss of the serratus interfered with abduction and flexion of the arm.

(2) In comparing the strength of the deltoid to that of the supraspinatus in abduction of the humerus, it was found that, at least in the individual studied, both muscles were about equally important. The complete loss of the deltoid, contrary to the usual textbook statement, did not cause a serious disability since practically the entire function of the deltoid was taken over by the supraspinatus.

(3) In the presence of a combined deltoid and supraspinatus paralysis, a well developed biceps is able to abduct the arm completely, provided the arm is kept externally rotated.

(4) The relationship between the strength of the biceps and the supinator in the motion of supination was approximately that of two to one.

(5) The relationship between the strength of the biceps and brachialis on one hand and the brachioradialis and the pronator teres on the other, in the motion of flexion of the forearm, was approximately that of three to one.

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The opinions expressed in this article are those of the writer personally and are in no way the official expression of the Medical Department of the U. S. Navy.

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A History of the American Physiotherapy Association

Ida May Hazenhyer, M.A.

Part II: Formative Years, 1926-1930

This second period in the history of the American Physiotherapy Association left no doubt in the minds of the members concerning the sound establishment of their organization. They knew the Association was here to stay, and they were convinced of its value and of its capacity to progress. It remained for the Association to continue the work the pioneers had initiated by adding to that beginning every item which would make known its own purpose and its aims, and which would advance the cause of physical therapy.

The purpose was stated in the constitution of 1927: "(a) To form a nationwide organ which will establish and maintain a professional and scientific standard for those engaged in physical therapy. (b) To promote the science of physical therapy by cooperating in the establishment of standardized schools of physical therapy and encouraging scientific research in the profession. (c) To cooperate with or under the direction of the medical profession and to provide a central registry which will make available to the medical profession efficiently trained assistants in physical therapy."

The Association was now becoming better known to those members of the medical profession who had not been familiar with the aides in army hospitals. The annual meetings usually were held at the time and place of the sessions of the American Medical Association, and members of that organization appeared on programs, read papers and were toastmasters at the banquets. The Association profited not only by the papers of the physicians, but by the opportunity of attending the meetings of the A.M.A.

Those conventions followed, for many years, a certain pattern. On the opening registration day, usually Sunday, there was a tea to which members came dressed in their second best. They were delightful affairs, those teas, at which old friends reunited and new friends were made. The next two or three days there were the formal programs with speakers, visits to clinics, round table discussions and business sessions. Sometimes the hostess chapter planned an extra social event or two; perhaps a supper in an unique or historic restaurant, perhaps a visit to some interesting place. Then, there was always the banquet: dinner dresses, dinner jackets with bow ties, the festive banquet hall, the speakers' table, speeches, hilarity, good fellowship.

Although elections had been held each year and two tickets were presented, it had become an unwritten custom that each set of officers should serve two years, and the vice-president was chosen from the section of the country in which the next officers were to be located because the vice-president automatically became president. However, the 1927 constitution definitely provided for a two-year term, and for two vice-presidents instead of one. Because the Association originated in the east and the majority of the members were in that section, the first three executive committees were in the east. But as the Association grew and spread to other parts of the country, it was determined that the governing board should be elected from the middle west in 1926, and two years later from the west. This custom of rotation has been observed to the present time. The secretary was not voted into office but was appointed by the executive committee.

It was during this period that the Council on Physical Therapy of the American Medical Association, organized in 1925, began to play an important part in the field of physical therapy; it was stating that physical therapy must be recognized as a part of medicine, and that courses should be introduced into medical schools. In this Council the Association found a reliable friend to whom it could refer some of its problems and from whom it received honest advice. Earlier in its history, the Association had attempted to accomplish some sort of affiliation with the American Medical Association in order to establish itself firmly without the sphere of the cults. Now, though in no way affiliated with the Council, it was realizing a satisfaction, through the Council's support, which to an extensive degree compensated the Association for its former disappointment. As this history proceeds we shall see that the Council has been the point of contact with the A.M.A.

In various ways the Association was becoming

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known in the general professional world: through the Bureau of Appointments which furnished qualified workers to physicians and institutions and which had advertising space in the JOURNAL OF THE A.M.A. and MODERN HOSPITAL; through the Publicity Committee organized in 1925; through the REVIEW with its subscriptions and exchanges with other journals; through representation on programs of other organizations.

And was the A.P.A. making its way to public recognition? Proof! At the Minneapolis convention in 1928 the banquet festivities extended beyond the scheduled departure of the train to Rochester where the program was to continue the next day. The train was held for one hour to accommodate convention members!

Membership

The membership roll for the first ten years of the Association was small compared to the great figures of other organizations such as nursing and physical education. In 1926 there were 307 members, and five years later there were 534. However, this membership represented, as it always has, more than the mere paying of annual dues; applicants were required to meet the rigid standards of the Association if they expected to become members. These standards were specifically expressed in the by-laws of 1927: "Active members are those having one year's practice in physical therapy within two years of graduation from: (1) An approved school of physical therapy. (2) An approved school of physical education and satisfactory completion of an approved course in physical therapy. (3) An approved school of nursing and satisfactory completion of an approved course in physical therapy."

By this time the day had passed when army aides would be admitted only upon the record of their service. The argument was that they had had sufficient opportunity, six years of it, to take advantage of the provisions made in the first constitutions. If any had been out of the profession during this time, the Association maintained that they needed to "brush up" on methods and theories.

Occasionally objections were raised against the exacting rule; arguments were sometimes advanced in favor of physical therapists who were proficient yet could not meet the requirements as stated. Again the Association reasoned that definite requirements were necessary if high standards were to be maintained. However, there was a provision in these new by-laws by which special applicants could be considered: "The executive committee shall have power to judge a candidate's training and experience which may be deemed equivalent to requirements in Article II, Section 2." Likewise, a member who had resigned or whose membership had lapsed could be reinstated by a majority vote of the executive committee if the member applied for reinstatement within two years and if back dues were paid. The dues were now five dollars.

This 1927 constitution also provided for junior memberships: "Junior members shall be persons fulfilling the requirements as active members, except one year's practice shall not be necessary. Junior membership may be held for two years when application shall be made for full active membership." Junior members paid dues of three dollars.

Likewise, during this period, the Association considered memberships of foreign trained physical therapists who came to this country to pursue their work. For these applicants, the Association accepted the list of schools approved by the Chartered Society of Massage and Medical Gymnastics of England.

Not only was it necessary for applicants to meet the requirements for admission, but once they became members they were expected to adhere to the policies of the Association. Any member violating the laws, especially the one pertaining to practice without a physician's direction, was "suspended at any time by a majority vote of the executive committee for malpractice or conduct unbecoming to a member of the Association, or tending to injure the reputation of the Association." The 1930 revision of the by-laws was more specific concerning discipline, and the following sentence was added: "Expulsion shall require the unanimous vote of the executive committee."

Also in the 1930 by-laws appeared for the first time the item of ethics: "The standards of ethics for this Association shall be as far as possible those of the American Medical Association. All members shall practice only under the prescription and direction of a licensed physician." (The latter statement had been in previous constitutions, and the policy had always been observed.)

Chapters

There was a little misunderstanding among some members as to the relationship of the chapters to the National Association. Perhaps this arose because some of the local groups were organized before, or simultaneously with, the National Association. But in time this question was cleared. The local groups became definite divisions of the Association because, as the by-laws stated, "All members of a chapter shall be individual members of the Association, and the

requirements for admission to chapters shall be those conforming to the American Physiotherapy Association." Besides the local groups already admitted, any new group of five or more members of the National Association could form a chapter by receiving the approval of the National office. It was impossible to be a member of a chapter and not a member of the Association, as it is impossible to be a citizen of a state and not of the United States.

However, many members were so widely scattered over the country that they could not conveniently belong to any chapter, and these were designated as members-at-large who paid dues directly to the National treasury.

Several new chapters were organized in cities where an annual convention was scheduled, for instance, Chicago, Washington, D. C., and Minneapolis. In these instances the executive committee called upon the members in the chosen locality to quickly organize a chapter so that they could make arrangements and act as hostess. In each case the new chapter did a good job, and the interest and enthusiasm thus aroused gave the chapter a running start toward establishing itself permanently.

During the first few years of the Association, each member at the annual meetings was allowed one vote, but after the 1927 constitution the voting was by delegates. Chapters with a membership of ten or less were entitled to one vote, with a membership of fifteen, two votes, with a membership of over fifteen, one additional vote for every ten members. Members-at-large could organize themselves at the conventions, and they were entitled to votes according to the above ruling as to numbers.

Chapter constitutions were to conform with the National in essential points concerning membership and standards, and a model constitution was formed by the executive committee of the Association. When an application for membership was rejected by the Association, the name of that applicant was sent to all the chapters so that there would be no confusion should that applicant try to join through a chapter. Likewise, when a chapter rejected an applicant the name was sent to other chapters and to the National office.

It was through chapters operating in their own localities that the reputation and publicity of the Association were enhanced. The members of one chapter became associate members of the local medical society. In another state, the chapter issued a bulletin to the members of the state medical society urging the physicians to employ the well-trained members of the chapter, and qualifications for chapter membership were quoted. Members of various chapters often were asked to appear on the programs of medical societies.

The names of the chapters were to be uniform: American Physiotherapy Association, ... Chapter. However, in the case of two or three chapters which were already incorporated within their own states, the chapters were permitted to use the name under which they were incorporated. Hence there is a slight variance in the names as listed in the REVIEW.

During this period of the history, eleven new chapters were admitted: Minnesota, Northern California, Southern California, Oregon, Rhode Island, Wisconsin, District of Columbia, Washington, Michigan, New Jersey, Texas. There were now sixteen chapters in all.

Name

Life would be so pleasant if there were no vexing problems.—Or would it? Would the A.P.A. have thrived, as it has, on a bland diet of merely delectable foods? Certainly the problem of "name" offered plenty of rough substance to keep the Association in a healthy state of alertness.

The great majority of members still persisted in keeping the name as it was, but a few began to consider the question in the light of the requests coming in from the medical profession. The members who opposed a change argued thus: "Cannot those in the medical profession who are engaged in the practice of physiotherapy be content with the medical degree which confers upon them the title of 'doctor' and allow those of us having no special degree the title of physiotherapy?—Does the word 'technician' carry with it distinction, specific definition and dignity? Does it not imply mechanically following set technique which is impossible for intelligent work or for attaining best results? Physiotherapy is not the practice of medicine but simply an adjunct. We must have an individual classification which signifies that we are personally interested in our own profession."

Although the present name had been voted upon and approved twice before, the question was again presented at the Cleveland convention in 1926. Letters were read from medical organizations which had requested a change of name, and the suggestions of the Association's advisory committee and of other physicians were stated. Some of the latter suggested adding "technician" or "operative physiotherapist," and some remarked, "Keep your name." The Council on Physical Therapy of the American Medical Association did not approve the term operative, but urged the

use of technician. But after sober consideration of all suggestions and requests, the Association voted, by an overwhelming majority, to retain the present name.

After this, the issue was quiescent for a period. But that was only a rest period between the rounds; those concerned were still unsatisfied. A well-known physician and a friend of the Association said: "You can't fight the medical profession. If you wish to stand, you must cooperate." When the chairman of the Bureau of Appointments sent an advertisement bearing the term "operative physiotherapist" to the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, the Council on Physical Therapy agreed to use the advertisement if it read "physical therapy technician."

Once again, the officers of the Association took a deep breath and assailed the ineluctable situation. A hundred and ninety-nine letters were sent to chapter presidents, to physicians, and to various organizations. The following tabulation resulted and was published in the REVIEW of March-April 1930:

1. Officers of the A.M.A.—no report.
2. Council on Physical Therapy—to change name.
3. Orthopedic Association—31 to retain present name, 17 to change.
4. Advisory Committee—3 to change name.
5. State and County Medical Societies—6 to retain present name, 4 to change.
6. Chapters—10 out of thirteen to retain present name, 3 no definite report.

The majority of honorary and associate members of the Association were in favor of retaining the present name.

The next issue of the REVIEW carried an editorial which faintly suggested that the name bugbear was wearing down at least a part of the executive committee. "We shall greet this year as previously that ever-present question, 'What's in a name?' We have grown old in debate but have never yet worn out the subject . . . We can be 'physiotherapists' or 'physiotherapy technicians' or what have you as long as we are there." But the editorial ended on a note which indicated that even the "old in debate" had not reached a completely malleable attitude: "We have in the past served the medical profession with undivided allegiance; we have upheld their hands in the army, in hospital work and in private practice; we have rigorously followed the ethics of our profession and the tenets of our constitution and we shall continue to do so. But we also stand for the true dignity of the science of that profession in the American Physiotherapy Association."

But at long last, at least a part of the controversy was definitely shelved. In 1930 the name was firmly secured by incorporating the Association in the State of Illinois (it was not possible to incorporate as a national organization in the District of Columbia), and the official insignia was copyrighted with the Federal Government! Pins were made up in the Association's colors of blue and gold. That accomplishment evoked a long, deep sigh of relief. How long and how deep? We shall see in the next installment of this history.

Legislation

Legislation was another topic which occupied much attention. To be sure, by this time the Association had come to realize that universal legislation for physical therapy as practiced by members was not only unattainable, but was undesirable. The Association was too small in numbers to gain such laws as it might covet. Since an organization as large and powerful as the American Medical Association was not always successful in combating unworthy legislation, since healing fads and cults often were licensed in spite of the A.M.A.'s efforts to the contrary, a group as small as the A.P.A. could do little more than get itself besmeared by associating itself with the cults and quacks. "Stay out of politics," said a member of the advisory committee.

"The cults notwithstanding the weakness of their theories," said a lawyer writing about legislation for the REVIEW, "have been making steady progress with legislative assemblies throughout the country, and undeniably have obtained from them favorable recognition by law. . . . The most active opponents" (of good and sound legislation) "are the proprietors of the low grade cult schools which assume to make doctors out of ignorant persons in a few months. . . . These schools can stay alive only under laws that make it possible for their graduates to hold themselves out to heal the sick without having even elementary scientific knowledge of the human body."

Although the Association had no desire to have its members classed with the cults or be subjected to the legislation covering drugless healers, it could not ignore the fact that there was danger—danger of mistaken identity, and danger of being forced to hold licenses which might be undesirable or even ignominous.

In one large city a member maintained a private office where she accepted patients referred to her by physicians. She was well-known among the medical men in the city and they regarded her work and ethics with respect. But according to some ordinance of the city, she was compelled to hold a license for which she had to pay a fee.

Because she objected strenuously to the classification of masseuse it was suggested that her status might be classified under "barber." When she refused to be a barber, she was classed as a cosmetican, and according to the license could give Russian baths, steam baths, manicures, hairdressing, or anything the soul-to-be-beautified might desire. "Oh boy, did I turn them out beautiful!" she exclaimed when there was nothing to do but laugh it off. For in spite of the intervention of the physicians under whom she worked and in spite of their statements as to the type of work she was doing, she remained a "cosmetician." It was all of little avail when it came to the political machine.

The District of Columbia Chapter had an even more unhappy experience, for that involved a tragedy. A patient who was receiving chiropractic treatments died because of a fractured vertebra acquired while under treatment. Much publicity was given the case, and newspapers carried headlines stating that the girl's death occurred while she was under "adjustments" by a physiotherapist. The chiropractors in the city had sufficient influence to keep the term chiropractor out of the press, but the term physiotherapist was accorded the man throughout the report. The District of Columbia Chapter published signed statements in all the newspapers explaining that the man was not a member of the American Physiotherapy Association and was not a graduate of any accredited school. Nevertheless, the convicted man remained a physiotherapist, not a chiropractor.

In several eastern states, members of the Association made a survey of the legislation situation and found that only New York had a law relating to physical therapy, and that law was not satisfactory. (Pennsylvania had an Act relating to physical therapy.) In the other states, if physical therapy was mentioned at all it was included with the cults and "paths." But the Southern California Chapter reported the following legislation: "Drugless practitioner's certificate authorizes the holder to treat diseases, injuries, deformities or other physical or mental conditions without the use of drugs or what are known as medical preparations and without in any manner severing or penetrating any of the tissues of human beings except the severing of the umbilical cord."

In many places, especially the large cities, shingles bearing the impressive term "physiotherapy" plus that of chiropractor or what-have-you, hung in venetian-blinded windows to attract victims with ills and pains. Undoubtedly a license was required of each of these pain killers, but toward such a form of license the Association maintained an inexorable attitude of scorn.

Because the Association recognized that there was a problem in legislation, a standing committee was appointed in 1928. The duties of this committee were: to be on the alert for any laws governing physical therapy; to gather information and investigate any matters pertaining to state legislation; to advise and cooperate with chapters regarding their individual state problems. The following year the committee's report showed that this vigilance was a necessary piece of work if members of the Association were to be protected against inimical laws. To be sure, the Association, with no political influence, could hope for only a modicum of success in combating unfavorable laws, yet through the interest and assistance of medical societies, sometimes grave and dire consequence was avoided. Indeed, the work of the Association was that of defense rather than an attempt to gain positive legislation. The American Medical Association maintained that the standards of the Association were so high that membership in the organization was sufficient registration.

Education and Standards

The greatest achievement of the Association during this period was the work initiated concerning schools of physical therapy. As we have noted in the above sections of this part of the history, the true profession of physical therapy was in some danger of being ensnared in the deluge of postwar cults which grasped the, to them, fancy title of physiotherapy. For the Association to ignore this trend or submit to it was tantamount to destruction. Therefore, it continued with its already established purpose of maintaining and increasing its own professional standards, and doing what it could to set physical therapy above the status of those who pursued their work without heed to ethics and with little consideration of proper and adequate training.

First, the Association stated its own standards for membership (the constitution is quoted in the section on membership), and second, it endeavored to establish some minimum requirements in the educational field. Of the Association's standards, a prominent physician interested in physical therapy said: "It seems hardly possible that the medical profession and the hospital authorities are less critical of the requirements for this work than the people who actually do this work under their direction. But this is so when we consider the requirements of the American Physiotherapy Association, an organization of physical therapy technicians. Their requirements for

full membership in their association are surely not too high for the hospitals to set as a minimum standard for the technician in charge of administering physical therapy in their departments."

(There were some offices and hospitals which, when equipping departments, referred to the commercial houses to supply technicians whose only knowledge of physical therapy was acquired through a short course in electrotherapy or a correspondence course. One hospital employed a chiropractor. A medical journal carried an advertisement of a course of two evenings a week for two months: "Any intelligent girl can learn this interesting work." After a protest from the American Physiotherapy Association, the advertisement was discontinued.)

"One of the great difficulties at present," wrote a physician in THE PHYSIOTHERAPY REVIEW, "is the lack of well-organized courses which provide adequate and diversified training, for not until a higher educational standard is reached will most hospitals insist upon the employment of accredited technicians." Regarding the sometimes stated fear that technicians with too thorough training might stray from the path of medical ethics, this same writer continued: "To become more conversant with this subject enhances respect for the problem and enlightens one as to how little is really known and how much depends upon general medical knowledge. This advanced training tends, therefore, to create respect, both on the part of the physician and the technician, and make for better cooperation and advancement."

Another physician said: "One of the greatest joys in work is to have a thorough understanding of an intricate subject. . . . The higher the educational standard for this work, the greater is the challenge to the right type of individuals."

Apprehension concerning members of the American Physiotherapy Association was, of course, absurd. The Association's by-laws definitely stated its ethics, and any violation of those ethics meant discipline or expulsion. However, those who knew the Association's standards were more concerned with meeting those standards than condemning its educational ambitions. The head of one recognized school remarked: "If the course does not reach the standards of the American Physiotherapy Association, what must be done to bring it up, for we want the graduates of this school to be eligible for membership." The superintendent of a hospital insisted that the technician in charge of the physical therapy department must be a member of the American Physiotherapy Association.

Since there was no authoritative means of checking schools of physical therapy, the officers and the committee on education attempted, humbly and with due cognizance of their limitations, to set a standard by which such schools might form their curricula and their entrance requirements. After serious study of the situation, after seeking advice and suggestions from the Council on Physical Therapy of the American Medical Association and other reliable sources, and after consulting with already established schools in this country and England and Sweden and Australia, a minimum course of study was formulated. The length of the course was nine months, with 1,200 hours of theory and practice, and the entrance requirements were graduation from recognized schools of physical education or nursing. (The full curriculum appeared in the June 1928 issue of THE PHYSIOTHERAPY REVIEW.

Some members, and others, suggested a four-year course in physical therapy in which case the prerequisites of physical education or nursing could be ignored. This was an idealistic conception, but at the time it was not practicable. Physical therapy was still too young to demand a degree of all who practiced the profession. A few people proposed a two-month course super-imposed upon the prerequisites, but this, the Association declared, was not sufficient training. In fact, the chapters were warned not to accept applicants for membership whose only training was a six weeks course. Such a course was considered as graduate work, a further study for those who had already had other training and experience.

The newly composed curriculum was sent to the schools now approved, and the cooperation of these schools in improving courses was solicited. Institutions contemplating physical therapy courses asked for the curriculum. Copies were sent to the Council on Physical Therapy of the American Medical Association and to the Council on Medical Education and Hospitals of the A.M.A. The curriculum was published in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Feb. 8, 1930.

With a curriculum established, the Association proceeded to an even greater undertaking: that of listing approved schools of physical education and nursing, and of inspecting schools of physical therapy. For information concerning schools of physical education, the National Physical Education Association was consulted, and for schools of nursing, the American Nurses' Association. This procedure required considerable work on the part of the educational committee, but no great responsibility. However, inspecting and approving schools of physical therapy presented a

more complex situation, for this involved a certain degree of accountability. There were those who criticized the Association for presuming to set itself, or its judgment, as an archetype, yet, as a matter of fact, it had no ambition to assume the imperialistic role; it was merely attempting to fill a vacuum and a need in the field of physical therapy, a task no one had yet undertaken.

Formal blanks were printed by the Association, and these were sent to the various schools in order to estimate the schools' curricula and requirements. But the Association soon found that this procedure was not satisfactory; it felt that a more personal inspection was advisable. Thus in the early part of 1930 a special committee set out to make a tour of the country and visit the schools offering, or anticipating, physical therapy courses. From west coast to east, the committee travelled, stopping at each school for a conference, giving and gaining information. The chairman reported that all of the schools except three were most cordial and cooperative. After a three-month tour, the committee returned to make its report to the annual meeting in Detroit, and to offer recommendations in the light of the knowledge acquired during the inspection tour.

One of these items was the complaint of some of the schools concerning the three hundred hours of anatomy required by the curriculum. The argument was that students of physical education and nursing had had some anatomy in those prerequisite courses and should be given due credit in physical therapy courses instead of taking the full three hundred hours. The Association recognized the validity of this argument and plans were made to redistribute the required hours of the curriculum.

Although the inspecting committee found that not all of the schools met the standards of the Association, those which expressed a desire to improve their curricula and requirements were placed upon the approved list and their graduates accepted for membership with the understanding that within a limited time they would correct their deficiencies.

In the July-August 1930 issue of the REVIEW, eleven schools appeared on the approved list.

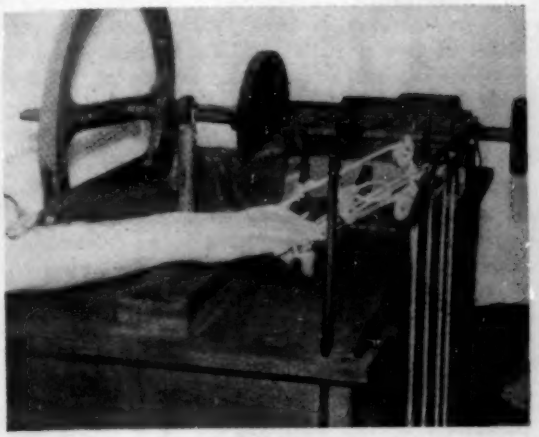
The Physiotherapy Review

The REVIEW, like the Association itself, had survived the primordial state and was now hewing the forest of uncertainty to make for itself a permanent place in the realm of professional journals. Oh, the clearing still had its stubbles, and the editorial staff undoubtedly tripped many a time as it made its way through the still unfamiliar field, but the REVIEW was persistently going ahead. It was becoming a settler.

The outer dress remained gray, and the size was the original five-and-a-half by seven-and-a-half, but on the September 1926 cover appeared for the first time the full name, THE PHYSIOTHERAPY REVIEW. Within the covers, the journal was keeping in step with the growing of the Association and the changing advances of physical therapy. Even the echoes of army days had ceased to reverberate through the volumes, except in the continued advertisement of aides' uniforms. Even these uniforms had moved the belt down to the hips according to the waist-line style of the time, and the hair on the models was bobbed. The last we see of these noted uniforms in the REVIEW is in the June 1927 issue. The REVIEW had graduated from its course in the postwar era, but though it no longer carried army jokes and news items of aides, its loyalty to the Association's alma mater was steadfast.

But as an individual cannot forever cling to the past, so the REVIEW, if it was to live at all, had to turn its attention to the present and to the future. It was still something of the novice, however, still experimenting as we may see by the various changes made from time to time. The editorial staff, now consisting only of an editor and circulation manager, was trying different innovations in format, sometimes placing the table of contents and editorial staff on the cover and the executive committee on the first page, sometimes shifting to other positions. Finally, for the remainder of this period, the complete table of contents appeared on the cover, the staff and post office statement on the first page, the executive committee on the editorial page. Two different covers of this period varied from the usual gray, whether because of experimental ideas or because of printer's shortage we do not know. Volume 10, Number 5 was a gray-blue very much like the present cover, and Volume 10, Number 6 was a beige. This latter cover color was the only one of the kind throughout the twenty-five years.

Likewise, during this period occurred an incident—or perhaps we should say it did not occur—which was unique in the history of the REVIEW. The December 1926 issue defaulted! Why? This writer was on the executive committee at the time and now her most poignant recollection is that of chagrin and dismay among the members of the committee. The March issue, bearing the double number Volume VI, Number 4 and Volume VII, Number 1, carried an editorial which palliated, to some extent, the situation for the committee. The editorial explained that there had not been



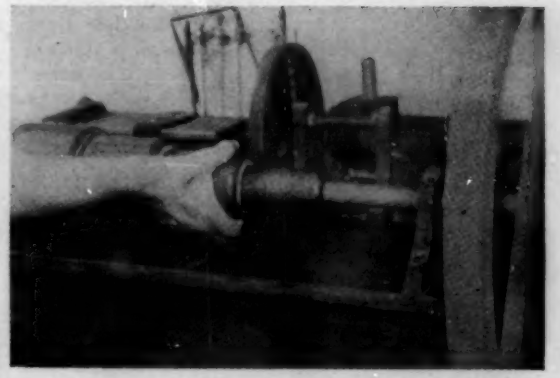


Figure 1. Table for exercising fingers and wrist. From "The Physiotherapy Review," Vol. VIII, No. 4, 1928.

sufficient material for the December number. "What is to be done about it? Every editor of the REVIEW has had to harp on this subject, but all to no avail."

Indeed, only a few months before this, an editorial complained bitterly: "Have you ever tried to pull a cat over a carpet by its tail? If you have you will know exactly how the editors feel when they try to get material and help from centers other than the one in which the REVIEW is published."

However, there was, likewise, another reason for the default of December 1926. The editor wished to resign, or had already done so, and the new executive committee, just taking over that office, somehow failed to take proper cognizance in time to avert the calamity of the omission of a REVIEW issue. It was the first time in the short history of the Association that the executive committee had migrated westward from the east, and the green midwesterners out there on the frontier (this pill had a bitter taste, too), were swamped in the maze of a new job. Perhaps they thought that the REVIEW, like the Mississippi River, flowed on forever.

And after that the REVIEW did! Whatever the difficulties, however many sleepless nights the editors endured, the cat was pulled over the carpet by its tail.

Besides the brief changes in the physical make-up of the journal, several permanent innovations were introduced during this period. Beginning with Volume IX, Number 1, 1929, the system of carrying page numbers throughout the issues of the year was instituted. (There was a slight mistake at the beginning. The page numbers were carried through two years.) With the Volume IX, Number 2 issue, the REVIEW increased its physical stature to the eleven-and-a-half by eight-and-a-half which it maintained for many years. In 1928, at the Minneapolis convention, the Association voted to increase the number of issues to six a year, and chapters were to be responsible for a reasonable amount of material for specified issues. However, it was not until the December 1929 issue that the name of the chapter responsible appeared on the cover. Likewise, it was not until 1929 that six REVIEWS were published; in 1928 there were five. Subscription rates were raised from two dollars to two and a half.

The advertising department had its difficulties, too. Since the REVIEW's circulation was not as extensive as that of many other professional journals, commercial houses were reluctant about paying for space, and furthermore, the REVIEW was careful to accept for advertising only those articles which were approved by the Council on Physical Therapy. The chief source of advertising came from the approved schools. Of the nine advertisements in one issue, for instance, five were of physical therapy courses.

The bibliography of current literature, from the Hospital Library and Service Bureau, was continued, and the first bibliography of REVIEW articles for the year was published in December 1927. The book reviews were becoming more

detailed than that very first one of a few lines. Publishers, becoming aware of the new journal, were sending books for the purpose of review. The REVIEW was beginning to exchange periodicals with other organizations, and it was included in the list of journals of the American Medical Directory. The formal statement of ownership, required by an act of Congress and sworn to by a notary public, which appeared in the March-April 1930 issue, definitely established the REVIEW beyond the realm of amateur publications.

Figure 2. Poliomyelitis patients in braces. From "The Physiotherapy Review." Vol. IX, No. 1, 1929.

The abstracts by Dr. John S. Coulter were first published in the December 1928 issue. These abstracts have continued in every issue to the present time, with one exception, and have become and integral part of the REVIEW. The articles abstracted by Doctor Coulter are pertinent to physical therapy, or of value as supplementary knowledge. In this department the reader may obtain a cursory view of the trends in physical therapy and may then choose those articles which he would like to pursue more fully in their complete form.

As we turn our attention to the other professional material of the REVIEW, we see how far the journal had already progressed since the first few issues. For in spite of editors' headaches (the headaches were undoubtedly an ineluctable result), the material was of good quality, representing a great variety of subjects. Much of it was of a practical nature, and one gratifying feature was the number of articles written by members of the Association. During the five-year period of this part of the history, there were forty such contributions.

The REVIEW has always encouraged members to write, and to stimulate more interest, a contest was offered. All members of the Association were eligible, and any subject relating to physical therapy was acceptable. The prizes were: (1) fifty dollars and a life membership; (2) a life membership; (3) honorable mention. The jury consisted of three physicians interested in physical therapy. The results of the contest were published in the July-August 1930 issue, and the papers later appeared in the REVIEW. "I trust you are as enthused as I am by this admirable group of papers," said one judge writing to another. "I was impressed by the high type of the papers submitted," said another judge.

The titles of the articles of this period were becoming more diversified. In addition to the heretofore usual subjects, one saw topics on otolaryngology and ophthalmology, endocrine glands, maggot treatment of osteomyelitis, skin conditions, myofibrositis, thermoluminous medication The readers of the first REVIEWS would have been aghast, confronted by such terms; now, they were only reaching nonchalantly for the medical dictionary, if necessary.

The following tabulation will offer a bird's-eye view of the more popular topics during this five-year period: spastic, seven articles (cerebral palsy had not yet appeared); poliomyelitis, six articles (the first to appear in the REVIEW was in 1924, and the second, the first of the period, in October 1928); fractures, three articles; arthritis, five articles; ultraviolet, five articles; electrotherapy, fifteen articles; massage, three articles; hydrotherapy, seven articles; relating to posture, ten articles; on foreign countries, six articles; concerning physical therapy and its place and scope, eleven articles. The papers varied in length from one page to twenty or more, and eleven were illustrated with a total of seventy-one cuts.

Editor's Note: This is the second of a series of articles by Miss Hazenhyer. The third article will appear in the May-June issue.

Correction—A statistical error was made in the article entitled "A History of the American Physiotherapy Association" by Ida May Hazenhyer which appeared in the January-February 1946 issue. On page 4, the last paragraph begins "During the war emergency there were some two thousand aides in service. . . ." This statement should have read "slightly less than eight hundred *physical therapy* aides," as shown by records in the Office of the Surgeon General.

How to Bring Benefits of Physical Medicine to Your Own Small Town

John S. Coulter, M.D.,* and Howard A. Carter**

The people in rural regions are awake to the need for equalizing the medical care they now have and that which is employed in urban areas. In the near future many of the veterans of World War II in small communities will become patients. They will expect for themselves and their families high-grade medical services in accordance with modern standards and trends. The problem of physical medicine in the small community can best be solved if there is a department of physical therapy in its hospital.

Personnel. The quality of physical medicine administered is dependent on the personnel of the department, which should be under the supervision of a physician. Our experience indicates that this service is most satisfactory when it is entrusted to a specialist, *e.g.* a member of the Society of Physical Medicine, a national organization of physicians specializing in this field. The advantage of the specialist is not merely that he presumably knows more about physical medicine than does the ordinary practitioner and so encourages a more discriminating use of physical medicine, but that he comes into the case in a way that carries no threat to the security of the referring physician or surgeon.

Hire Part-Time Specialist

Southmayd and Smith[1] state that in roentgenology "it has been found better to choose the best available specialist from a neighboring city and bring him to the hospital at regular intervals than to try to make a roentgenologist out of a local physician who continues to do general practice." The same is true in physical medicine.

After proper staff relations are established and with adequate personnel in each hospital, a specialist in physical medicine can supervise the work in all the hospitals in a district by properly spaced conferences with the staff and personnel followed by telephone service, which should adequately meet the needs in the interim. Such cooperation will greatly benefit those who put forth the effort and will provide better medical service in the community.

The small hospital should have a resident physician. Now that the war is over there will probably be a number of young physicians available for residencies. The medical schools and larger hospitals might well send their resident physicians for a part of their training to efficient small hospitals where they can get the feel of general practice better than anywhere else.[1] This arrangement might make it possible for a hospital in a small community to have a department of physical medicine.

If a consulting specialist or a resident is not available, it is better to train a local physician and put him in charge of the department than to permit physical medicine to remain at the low level it will occupy if each physician in the community tries to practice physical medicine in his office.

A department of physical medicine, to be successful, must have a registered physical therapy technician. The technician should be mature enough to organize her work. She should look to the specialist for supervision but in special cases should be able to look also to a designated member of the medical staff for guidance. If there is a resident he should be this person.

In our opinion the best technician for hospital service is one who has had nurses' training and nursing experience. The suggestion has been made that a physical therapy technician might also serve as x-ray and medical laboratory technician. This combination requires training in three separate technical specialities and thus entails a long period of preparation. If there is not sufficient demand for physical therapy in a small community hospital to occupy the full time of a physical therapy technician, it would be preferable to employ one who has had a nursing background so that she can do part-time nursing.

The physical therapy technician must be thoroughly trained because at times she may have to administer physical agents according to oral directions given by the consulting specialist. Skill

*Chairman, Council on Physical Medicine, A.M.A.
**Secretary, Council on Physical Medicine, A.M.A.
Reprinted from "The Modern Hospital," Vol. 66, No. 2, February 1946, page 64.

and service of this kind are possible only if she is well qualified and paid a salary equal to that which she can command in the city.

To obtain a physical therapy technician who is content to stay in a small community may be difficult because of social and economic conditions. This handicap can often be overcome if the community will interest a capable young person selected by the local hospital to take training in physical therapy. The courses in schools approved by the Council on Medical Education and Hospitals of the American Medical Association are from nine to twelve months in duration.

Applicants must have a minimum of two years of college training, including at least 12 semester units of biology and other basic sciences, or they must be graduates of accredited schools of nursing or physical education. Often they can obtain scholarships in an acceptable school. Scholarships are available from the National Foundation for Infantile Paralysis, 120 Broadway, New York 5, N. Y.

Arrangement of Space. A room, preferably on the first floor, 16 by 20 feet is the smallest space that should be allotted.[2, 3] This will enable out-patients to receive treatment without going through the hospital corridors. Many of the out-patients are handicapped and unable to ascend stairs. It is particularly important to have the rooms well ventilated and well lighted. Fresh air is especially vital where exercises are to be given.

Two treatment cubicles, 8 by 10 feet, should be installed. Each cubicle should be equipped with a treatment table 6½ feet long, 30 inches wide and 30 inches high, with a shelf 12 inches wide and 12 inches from the floor. Tables can be made by the hospital carpenter. A single bed mattress should be provided for each table.

Two treatment cubicles will allow the physical therapy technicians to apply infra-red, diathermy or ultraviolet treatments to one patient while giving massage or exercise to another.

Linoleum or a material of rubber composition makes a soft covering for the floor. The technician is on her feet all day; consequently, her efficiency may be decidedly lowered by foot ailments.

The plans for wiring and placing of apparatus should be drawn with a view to the future rather than the immediate needs of the department. It is far less expensive to have too many service outlets than it is to tear up the walls for rewiring later.

Equipment. Physical medicine in general hospitals consists largely of common sense and intelligent handwork. Elaborate apparatus and machine therapy do not make a department of physical medicine. The director is advised to keep this truism in mind when outfitting a department.

Minimum requirements for equipment consist of apparatus that can be made by a carpenter and an electrician. Heat can be administered with success without elaborate apparatus. Apparatus should be readily movable. A small department should have two home-made bakers, one paraffin bath, apparatus for exercise, such as shoulder wheel, exercise steps, shoulder abduction ladder, Kanavel table, overhead sling and pulley for bed exercises, adjustable parallel stall bars and posture mirror. Directions for making simple apparatus can be obtained from the Council on Physical Medicine of the American Medical Association.

If circumstances warrant, the following equipment may be added: one portable diathermy unit, one ultraviolet mercury arc lamp and one galvanic-faradic device.

How to Fix the Fees

Charges. The fee charged for physical medicine must be made with two variables constantly in mind: first, to encourage the best care for the patient and, second, to ease his financial burden. The fees in a small community hospital cannot be fixed until more experience has been obtained. The following factors will have to be considered in determining the rates: (1) what it costs the hospital; (2) what the patient thinks he is able to pay; (3) what the hospital thinks the patient can pay, and (4) what the hospital thinks the community will contribute.

Southmayd and Smith[1] wrote that the hospitals in the Commonwealth Fund group have adopted the following method of computing charges: To the basic charge for room, board and nursing care, a fixed amount is added for other services. These fixed surcharges are than added to the basic rate for the number of days the patient is expected to stay, and he can be told in advance exactly what the hospital care for a given period will cost. This in itself is good medicine.

The inclusive rate plan has clinical and psychological advantages for the patient. Either the patient or the physician may hesitate to recommend necessary physical therapy as it will increase the daily cost. As a matter of fact, it often decreases the total cost by shortening the period of convalescence. Since the physician cannot guarantee shorter time of recovery, the patient may be reluctant to increase the hospital costs. When the hospital is paid one sum for whatever the patient needs, these doubts are removed. Evanston Hospital, Evanston, Ill., has an inclusive rate plan which includes physical therapy. Dr. Roger

DeBusk, the director, believes this works out to advantage.

Another method of payment is through the hospital prepayment plans. The Hospital Service Plan Commission of the American Hospital Association recommends that physical therapy be included in all Blue Cross plans. Twenty-six Blue Cross plans include physical therapy in their hospital benefits and nine include limited physical therapy. During the last year, seven plans added physical therapy to their subscriber contracts.

Physical therapy does not increase the costs in the Blue Cross plans significantly. John R. Mannix, executive director of the Plan for Hospital Care, Chicago, in a study of 40,000 patients receiving physical therapy, found that the hospital rate for intelligently applied physical therapy was increased only two cents per patient day.

INSURANCE COMPANIES WILL PAY

Insurance companies writing workmen's compensation insurance are also willing to pay for this form of treatment. A. P. Aitken,[4] in charge of the Rehabilitation Center, Liberty Mutual Insurance Company, Boston, recently said: "The war has focused much attention on the rehabilitation of casualties. Many of our larger military institutions are now so equipped that rehabilitation of the injured begins on admission to the hospital. Physical and occupational therapy is administered to patients confined to bed. Although no official statistics are yet available, there is no question that such prompt treatment will shorten the convalescence of the injured. More important, however, than the time saved are the preservation of morale and the prevention of fixed deformities, both of which follow delayed or inefficient treatment.

"It is of equal importance that early and efficient treatment be rendered our industrially injured. Unfortunately, the facilities available to the military casualty are not yet available to the industrial casualty. The problem of rendering prompt and efficient cure to those injured on the home front is a challenging one."

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3. "Physical Therapy Departments in Hospitals with Fifty or More Beds," Council on Physical Therapy. J.A.M.A., 110:896, March 19, 1938.
4. Aitken, A. P.: "Rehabilitation of the Industrial Casualty," Va. Med. Monthly, p. 177, 1944.

Exercise Machine for Amputations Below the Knee

An exercise machine for the purpose of extending flexion contracture in amputations below the knee has been designed at Percy Jones General Hospital by Staff Sergeant Burt R. Becker, who has been doing special remedial work among patient amputees. The new machine already has been found to shorten the time previously needed to extend knee joints by manual treatment, contracture table, or wedge cast and thus will eliminate much work of the remedial staff. Heretofore the patient's remedial work on a flexion contracture has depended largely on the number of remedial workers available. At best the manual treatment or treatment by contracture table has been limited to once or twice a day. With this machine the patient himself may use it many times daily while he is confined to bed.

Major Harry E. Robbins, M.A.C., reports that an important observation, made by orthopedic surgeons who have seen the machine in operation, is the common tendency among patients to discontinue pressure on the knee joint with their first sensation to pain. As a patient has complete control over the machine, he does not overdo. While a maximum stretch can be placed on the hamstring group by this machine, less pain seems to be experienced by the patient in the stump. This probably is due to the fact that the stump is supported on a pad, which more evenly distributes the area of pressure on the stump. The machine has been particularly valuable in the treatment of postural contractures resulting from prolonged casting, low pain threshhold, and fibrosis on posterior of leg and knee joint.

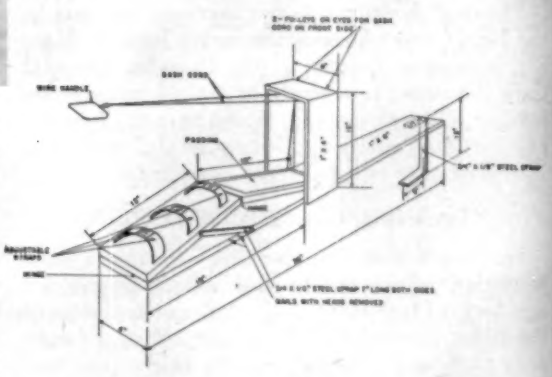
An added feature is the simplicity of its construction, which consists of a base piece of hard-

Reprinted from the Bulletin of the U. S. Army Medical Department, Vol. IV, No. 6, December 1945.

wood 36 inches long, 6 inches wide, and ¾ inch thick. Hinged to the rear of this base is the thigh extension board, 13 inches long, 6

inches wide, and ¾ inch thick. The thigh is strapped to this board by three 1½-inch web belts with buckles. Hinged to the forward end of the thigh extension board is the stump extension which is 10 inches long, 3¾ inches wide, and ¾ inch thick. This board is tapered toward the forward edge in order to clear the pulley-supporting bridge. The stump extension board is padded with orthopedic felt covered by leather to facilitate cleaning. The pulley-supporting bridge, 19 inches back of the base piece and screwed to its side, is 15 inches high, 4 inches wide, and 8 inches across the base piece. Two pulleys are placed on forward edge of the pulley-supporting frame, spaced to conform to the width of the stump extension piece at its forward end. Two sash cords are knotted at the end and drawn through the stump extension, upward through the pulleys and back for a length of 1½ feet, with wire handle attached.

The thigh extension piece is adjustable to conform to the degree of contracture and is locked to the desired angle by means of two strap iron pieces, one at each side. Three or more screws with heads removed are sunk into each side of the base piece beginning 10¼ inches from the rear and spaced 1¼ inches apart. A hole drilled into the base of the iron straps slips over the screw ends, thus locking the thigh extension piece at the desired angle. A strap iron hood is screwed to the forward end of the base piece. It is 13 inches long after



bending two 4-inch end sections to 90 degrees. This holds the entire machine down against the pull of the stump extension piece. It will conform to standard Army hospital beds. With the thigh firmly strapped onto the thigh extension piece, the patient pulls on the sash cord by means of the wire handle, thus raising the stump extension and stretching the flexion contracture. The specifications are shown in case some other amputation center desires to construct a similar machine.

CHANGE OF ADDRESS

All changes of address must be sent directly to the office of THE PHYSIOTHERAPY REVIEW, 4741 N. Paulina Street, Chicago 40, Illinois, by the 20th of the month prior to the publication date, if the next issue is to be received. Both the old and new address must be given. Since the magazine goes out as second class mail, copies are not forwarded.

Schools Approved for Training Physical Therapists

By Council on Medical Education and Hospitals of the American Medical Association

Name and Location of School	Medical Director	Technical Director	Entrance Requirements*	Length in Months	Classes Start	Tuition	Certificate, Degree, Diploma
Children's Hospital, Los Angeles.	Samuel S. Mathews.	Lily H. Graham....	a-b-c	12	FebAug	$200	Diploma
College of Medical Evangelists, Los Angeles[1].....	F. B. Moor.....	A. H. Carlson.....	c	12	JanJuly	$215	Cert. or Degree
University of California Hospital, San Francisco[1].....	Frances Baker.....	Margery Wagner...	a-b	12	MarOct	$150	Certificate
Stanford University, Stanford University, Calif.[1].....	Wm. Northway.....	Lucille Daniels.....	a-b-d[2]	10	Quart.	$409	Cert. or Degree
Northwestern University Medical School, Chicago.....	John S. Coulter.....	Gertrude Beard.....	a-b-d	12	JulyOct	$300	Certificate
State University of Iowa Medical School, Iowa City.....	W. D. Paul.....	Olive C. Farr.....	b-c	9	MarSept	None	Certificate
University of Kansas School of Medicine, Kansas City, Kans..	Gordon M. Martin..	Ruth G. Monteith..	c[3]	10	FebSept	$25[4]	Cert. or Degree
Bouve-Boston School of Physical Education, Boston.....	Arthur L. Watkins..	Constance K. Greene	c[3]	36	Sept	$400 yr.	Degree
Harvard Medical School, Boston.	Frank R. Ober.....	Janet B. Merrill....	a-b-c	9	Varies	$300	Certificate
Boston University, College of Physical Education for Women, Sargent College, Cambridge. Mass.....	Louis Howard.....	Adelaide McGarrett.	H.S.	36	Oct	Varies	Degree
University of Minnesota, Minneapolis[1].....	Miland E. Knapp...	Sara E. Kollman....	a-b-c	12	Jan	$200	Certificate
Barnes Hospital, St. Louis.....	F. H. Ewerhardt....	Beatrice F. Schulz..	a-b-c	9	Oct	$200	Certificate
St. Louis University School of Nursing, St. Louis[1].....	Alexander J. Kotkis..	Sr. Mary Imelda....	a-b-c[3]	9	Sept	$250 yr.	Cert. or Degree
Columbia University, New York City.....	Wm. B. Snow.....	Josephine Rathbone.	a-b-c	10	FebSept	$480	Certificate
New York University School of Education, New York City[1]...	George G. Deaver...	Elizabeth C. Addoms	a-b-c	9	FebSept	$450	Cert. or Degree
Duke University School of Medicine, Durham, N. C.[1].....	Lenox Baker.....	Helen Kaiser.....	a-b-c	12	Oct	$200	Certificate
D. T. Watson School of Physical Therapy, Leetsdale, Pa.[1].....	Jessie Wright.....	Kathryn Kelley....	a-b-c	12	Oct	$200	Diploma
Graduate Hospital of the University of Pennsylvania, Philadelphia, Pa.[1].....	George M. Piersol...	Katherine S. Sutherland.....	a-b-c	12	Sept	$200	Certificate
University of Texas School of Medicine, Galveston.....	G. W. N. Eggers....	Ruby Decker.....	a-b-c	9	Jan	$100	Certificate
Richmond Professional Institute and the Medical College of Virginia, Richmond, Va.**...	Frances Hellebrandt	Josephine Buchanan.	a-b-d	12	Sept	$200	Cert. or Degree
University of Wisconsin Medical School, Madison[1].....	Elizabeth Grimm...	Margaret Kohli.....	a-b-c	9	Sept	Varies	Certificate

*Courses are so arranged that any of the entrance requirements will qualify students for training. a = Graduation from accredited school of nursing; b = Graduation from accredited school of physical education; c = Two years of college with science courses; d = Three years of college with science courses; H.S. = High school graduation.

**Approved also for 6 months emergency course for Navy nurses.

[1]Male students are admitted.

[2]High school graduates accepted for a four-year course leading to A.B. degree; students admitted quarterly and tuition is $143 per quarter.

[3]High school graduates accepted for four-year college course.

[4]Nonresidents charged additional fee.

The Physiotherapy Review

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Guest Editorial

Greetings to the older PT's, to the younger PT's, to the PT's to be!

There is every reason to believe that after twenty-five years of struggle, that great august body, the Senate of the United States, is about to recognize physical therapy as a necessary part of the U. S. Army Medical Corps. Officers will then have salaries comparable to the Army and Navy. They will also be entitled to Army privileges, not merely Army rules and regulations as in the past.

According to Miss Ida May Hazenhyer, in 1921 when our National Association was created, like so many native-born American subjects, it acquired no birth certificate but emerged "out of the nowhere into the here." We have grown in stature during the last quarter of a century.

During our infant days we stumbled like all normal infants. We also passed through the growing pains of adolescence. When World War II came along, however, we were ready. We had "come of age" and were equipped by training to take over our share of the world-war responsibilities, a fully grown professional woman.

Were not our PT's to be found in every U.S. Army medical unit in the homeland and in the oversea units? Do we not have our Army headquarters in the Surgeon General's Office in Washington, D.C., having our own PT's at the helm? Do not up-to-date hospitals today feel the necessity of establishing a well equipped department of physical therapy? War victims and the general public are turning to physical therapy for aid. The profession has steadily revealed its value by its own merits, truly the only way for lasting preservation.

The first uniforms of the PT's of World War I are to be in the permanent exhibit in the Smithsonian Institute in Washington, D.C. Oh, yes! they were queer and look very funny to us nowadays. World War II PT's, wait until your children's children in 1971 design a PT uniform. You see they will say, "How queer those PT uniforms of World War II look, aren't those abbreviated skirts funny."

Scholarships in physical therapy are being awarded; UNNRA is planning to start training schools in this subject in different countries. Already there is a training school in Greece in charge of one of our own members, a former president of the A.P.A. For China, there are plans for the establishment of schools of training in physical therapy.

Many M.D.'s have added this branch of medical science to their studies and have become physicians of physical medicine. Many nonmedical students have attended recognized schools of physical therapy to obtain their Bachelor of Science degree and are now occupying responsible positions as qualified physical therapists.

I shall hope to meet many of my old friends, also many new ones at the twenty-fifth annual convention this summer. We shall meet in the beautiful Blue Ridge Mountains of North Carolina June 16-22. Keep the date. My calendar is already marked, how about yours?

—MARY MCMILLAN, *First President, American Physiotherapy Association*

Donald W. Gudakunst, M. D.

The death of Donald W. Gudakunst, M. D., on January 20, 1946, was a great personal loss to the American Physiotherapy Association on whose Advisory Committee he had served for the past two years. He had been a very valuable member of this committee, and whenever his advice was sought, wise counsel was received. As Medical Director of the National Foundation for Infantile Paralysis he was extremely interested in the aftercare of poliomyelitis patients and gave impetus to research and education in physical therapy.

He had been interested in our Association and

in physical therapy ever since he joined the National Foundation for Infantile Paralysis in 1940, and his keen insight into our problems made it possible to expand our activities through grants from the National Foundation.

Prior to joining the National Foundation, Doctor Gudakunst spent several years in public health work, chiefly in Michigan. He was Deputy Health Commissioner of Detroit from 1924 to 1937, and Michigan State Health Commissioner, 1938 and 1939. From 1937 to 1942, he was nonresident Professor of Preventive Medicine and Public Health at the University of Michigan, from whose medical school he had graduated in 1919.

Laura Romary

The Washington Chapter regrets the loss of one of its members, Miss Laura Romary, who died on December 11, 1945. Miss Romary was a member of the chapter for a number of years and maintained an office for private practice in Seattle.

Report of the Nominating Committee

The following is the slate for officers and directors presented by the Nominating Committee:

President.....Susan G. Roen, Los Angeles, Calif.
1st Vice-President....Harriet S. Lee, Denver, Colo.
2nd Vice-President.....Mildred F. Heap, Nashville, Tenn.
Secretary.....Lois P. Ransom, Boston, Mass.
Treasurer.....S. Paul Campbell, Philadelphia, Pa.
Director.....Jessie L. Stevenson, New York, N. Y.
Director.....Dorothy E. Baethke, Chicago, Ill.

Respectfully submitted,
MARGERY WAGNER, *Chairman*

Ohio Chapter

The Ohio Chapter of the American Physiotherapy Association will hold its annual meeting at the Deshler-Wallick Hotel in Columbus, Ohio, on April 3 and 4, 1946, with a program as follows:

Wednesday, April 3, 1946

9:00 A.M. Registration—50 cents
9:30 A.M.—Parlor H
Chairman: Emmy Kylin
Topic: Cerebral Palsy
Types of Cerebral Palsy—Esther Hutchinson
Treatment for Various Types of Cerebral Palsy with Demonstrations
a. Muscle Test for the Spastic
b. Relaxation
c. Muscle Education
d. Braces and Special Furniture
e. Treatment for Cerebral Palsy through Parent Education as worked out in State Project.
—Enid Fifield
—Elizabeth Lanctot
1:45 P.M. Town Meeting
Ohio Hospital Association
7:30 P.M. Hospital Association Banquet

Thursday, April 4, 1946

9:30 A.M.—Parlor H—Business Meeting
12:15 P.M. Luncheon
Chairman: Marguerite Walker
Speaker: Shelby G. Gamble, M.D., Assistant Professor of Medicine, Ohio State University.
Topic: Physical Medicine at Ohio State University; Its Relation to the Ohio Chapter of the A.P.A.
2:00 P.M.—Parlor H
Rh Factor in Relation to Cerebral Palsy
Speaker: Warren Wheeler, M.D., Associate Professor, Department of Pediatrics, Children's Hospital, Ohio State University
3:15 P.M.
Topic: Physical Restoration Program of the Bureau of Vocational Rehabilitation.
Speaker: Thelma Fletcher, Supervisor of Physical Restoration, State Board Vocational Education.

Tri-State Hospital Assembly

The Tri-State Hospital Assembly will be held at the Palmer House, Chicago, Illinois, on May 1, 2 and 3, 1946. The Illinois, Indiana, Michigan and Wisconsin Chapters of the American Physiotherapy Association are cooperating in a sectional meeting with a program as follows:

Thursday, May 2

2-3 p.m. "Orthopedics in the South Pacific"—Dr. H. A. Sofield, Chief Orthopedist at Shriners Hospital, Chicago; Formerly Orthopedic Consultant in the South Pacific during World War II.
3-4 p.m. "Bed Exercises"—Dr. Nila Covalt, Veterans Administration, Washington, D. C.

Friday, May 3

2-4 p.m. Panel discussion on "What Your Hospital Should do in Case a Poliomyelitis Epidemic Hits Your Community."

Discussants:

Mildred Elson, representing physical therapists.
Louis Olmsted, representing nurses.
Jessie Wright, M.D., representing physicians.
Catherine Worthingham, representing the National Foundation for Infantile Paralysis.

All interested individuals are cordially invited. Members of the American Physiotherapy Association are requested to urge nurses and physicians to attend this meeting so that they may have a better understanding of the uses of physical therapy procedures in the treatment of poliomyelitis.

Teaching Fellowships

The teaching fellowships are now being processed by the National Foundation for Infantile Paralysis. Applications should be made directly to Miss Laurette Du Bois, National Foundation for Infantile Paralysis, 120 Broadway, New York 5, New York.

These fellowships include tuition and a yearly stipend, payable monthly. The awarding committee requires that an applicant be a member of the American Physiotherapy Association and/or a member of the American Registry of Physical Therapy Technicians; that the applicant be a candidate for a B.A., B.S., or an advanced degree; and that he or she definitely plan to enter the teaching field. A minimum of three years of experience is essential. The program of study of not less than one year or more than two years duration must be approved by the medical director of the school which the applicant wishes to attend.

For further information on the teaching fellowships you may refer to the May-June 1945 issue of the REVIEW.

Pi Beta Phi Fraternity

During the war Pi Beta Phi awarded physical therapy scholarships for emergency courses to young women who would practice this profession in a government hospital for the duration and for six months thereafter, upon the completion of the course. Since the termination of hostilities, all emergency courses for training physical therapists have been discontinued. Pi Beta Phi Fraternity recognizes that there still is a need for training physical therapists and has offered to increase their scholarship allotment to cover the clinical practice at a rate of $75 per month for a period not to exceed six months. These scholarships will be awarded only to young women who will serve in Veterans' Hospitals. All inquiries concerning these scholarships should be sent to Mrs. Henry Koehler, Chairman Committee for War Work, Pi Beta Phi Fraternity, 6043 University Avenue, Chicago 37, Illinois.

Courses for Teachers of Handicapped Children

The Horace H. Rackham School of Special Education, Michigan State Normal College, Ypsilanti, Michigan, will hold a summer session from June 17 to July 26, 1946. The program will consist of (1) graduate and undergraduate courses for teachers of children (a) with speech defects, (b) with partial vision, (c) who are blind, (d) who are crippled, (e) who are mentally retarded, (f) of low vitality, and (g) who are deaf or hard of hearing, and (2) degree curriculum in occupational therapy. Further information may be obtained by writing to the Michigan State Normal College, The Horace H. Rackham School of Special Education, Ypsilanti, Michigan.

Veterans Administration

The latest available information regarding the newly established Bureau of Medicine and Surgery in the Veterans Administration was given in the February 1946 News Letter to members of the American Physiotherapy Association. Any change in the classification of physical therapists employed by the Veterans Administration will be announced as soon as it is made available to us.

National Society for Crippled Children

Lt. Col. George D. Wilson's appointment as director of physical medicine of the National Society for Crippled Children and Adults, Inc., has been announced recently by Lawrence J. Linck, executive director.

"Doctor Wilson's appointment marks another development in the expansion of facilities offered by the National Society," stated Mr. Linck. "He will act in an advisory capacity in the society's program to assist communities throughout the country in meeting the medical problems posed by handicapped persons."

Lt. Col. Wilson is on terminal leave from the army, having served as chief of reconditioning service and of physical medicine at the army's Oliver General Hospital in Augusta, Georgia.

Annual Easter Seal Sale

The thirteenth annual sale of Easter seals by the National Society for Crippled Children and Adults will be conducted during the month before Easter, March 21 to April 21. The 1946 Easter seal will be edged with silver to celebrate the twenty-five years of growth of the National Society. Buy and use Easter seals, thereby helping to provide medical and vocational counsel for physically handicapped children and adults.

"Know Your Public Health Nurse" Week

Keyed to the slogan, "Open the Door to Health," an educational campaign to make the nation better acquainted with public health nursing services will be sponsored April 7-13 by the National Organization for Public Health Nursing in cooperation with the U. S. Public Health Service. Thousands of communities in all sections of the country are preparing to take part in the observance which will be called "Know Your Public Health Nurse" Week. For further information, write the National Organization for Public Health Nursing, 1790 Broadway, New York 19, N. Y.

Baruch Committee

To advance and encourage research, teaching and training in the field of physical medicine—and to bring the benefits of this branch of medicine to the rehabilitation of persons maimed in war, industry or by illness—Bernard M. Baruch in 1944 made an initial grant of $1,100,000 to the Baruch Committee of Physical Medicine.

The first annual report of the committee, prepared by the medical director, Frank H. Krusen, M. D., of the Mayo Clinic, has outlined the progress in attaining the objectives of Mr. Baruch's endowment.

Eleven medical schools shared funds in the original grants: Columbia University, $400,000; New York University, $250,000; Medical College of Virginia, $250,000; Massachusetts Institute of Technology, $50,000; University of Minnesota, $40,000; University of Southern California, $30,000; Harvard University, $25,000; University of Iowa, $15,000; University of Illinois, $15,000; Washington University, $10,000; Marquette University, $5,000; Harvard received a later special grant of $30,000 for a special fellowship program.

New Members

The following are newly accepted members of the American Physiotherapy Association:

Allen, Anna Belle, 335 A West 14th St., Long Beach, Calif.
Barton, Margaret L., 9 Meade Avenue, Passaic, N. J.
Brown, Mary Eleanor, 50 West 8th St., New York 11, N. Y.
Brubaker, Stella, U. S. Naval Hospital, Santa Margarita Ranch, Oceanside, Calif.
Buchanan, Helen C., Percy Jones Gen. Hosp., Battle Creek, Mich.
Buckus, Andrew, 109 Campbell, Bath, N. Y.
Butler, Alice Irene, WOQ Cedar Ave., Mare Island, Calif.
Carroll, Joan, 78 Riverside Drive, New York, N. Y.
Caspari, Frieda, 908 Normandie South, Los Angeles 6, Calif.
Catlin, Eileen N., McGuire Gen. Hosp., Richmond, Va.
Cheshire, Minerva W., 209 S. High School Ave., Columbus, Kans.
Christy, Marian L., ASF Regional Hosp., Fort Ord, Calif.
Collier, Jeanne Elizabeth, 924 Royal St., New Orleans, La.
Daum, Anna Wanda, 915 First Street N. W., Rochester, Minn.
Doing, Adeline E., 2665 S. Sherman Street, Denver 10, Colo.
Dreis, Kathryn R., 2205 Aldrich Avenue, Minneapolis, Minn.
Fedullo, Grace Mary, 218 North Wyoming Street, Hazleton, Pa.
Fiscus, Edna E., 858 Washington Avenue, Findlay, Ohio.
Fitts, Lucille B., 223 S. Johnson Street, Iowa City, Iowa.
Foust, Mrs. Catherine C., 743 Beechwood Road, Hevertown, Pa.
Frazee, Lt. Mary E., Lawson General Hospital, Atlanta, Ga.
Fried, Mrs. Helen B., 65-38 Booth Street, Forest Hills, Long Island, N. Y.
Friedman, Antoinette, 17 Watkins Avenue, Oneonta, N. Y.
Gann, Mrs. Mitzi-Ann H., 527 Sutter Street, San Francisco, Calif.
Gaughran, Mrs. Rose, Hotel Albert, 65 University Place, New York, N. Y.
Grant, Mary Ellen, 2225 Grove Street, Denver 11, Colo.
Haley, Clara Beth, 4582½ Sunset Boulevard, Los Angeles, Calif.
Hamilton, Dorothy L., 205 Madison Avenue, Youngstown, Ohio.
Harris, Mildred E., 329 East 58th Street, New York 22, N. Y.
Haukland, Christine, 947 East 7th Street, Brooklyn, N. Y.
Hendricks, Mrs. Alice Choste, 1414 Dollar Avenue, Durham, N. C.
Hickey, Marie C., 34 Pitt Street, Patchogue, N. Y.
Hilbish, Jane, Nelson County, Piney River, Ga.
Hixson, Mrs. Charles R., 422 Second Avenue S. W., Rochester, Minn.
Humes, Jean E., 415 West 23rd Street, New York 11, N. Y.
Judge, Mildred E., 76 Barnes Avenue, Gouverneur, N. Y.
Kammerer, Patricia M., Box 194, Harmon General Hospital, Longview, Tex.
Lawless, Isabel, Route No. 2, Collinsville, Ill.
Lazicki, Eleanor, 915 First Street N. W., Rochester, Minn.
Le Roy, Jeanne M., 1543 Rosalia Road, Los Angeles, Calif.
Lindholm, Virginia A., 423 South Avenue, Mankato, Minn.
Lloyd, Lt. Janet, Valley Forge General Hospital, Phoenixville, Pa.
Luoma, Ensign Ellen M., U. S. Naval Hospital, Portsmouth, Va.
McColligan, Vera L., 430 Coolidge Avenue, Pittsburgh, Pa.
McCrory, Marie A., Route No. 1, Glenwood, Ind.
McKnight, Rebecca E., Staff Percy Jones Annex, Fort Custer, Mich.
Miller, Eleanor D., England General Hospital, Atlantic City, N. J.
Miller, Elizabeth A., WOQ Cedar Avenue, Mare Island, Calif.
Morgan, Judith, U. S. Naval Hospital, Corvallis, Ore.

Nash, Lt. Marjorie V., Hammond General Hospital, Modesto, Calif.
Ness, Lt. Agnes P., 3801—47th Avenue, Minneapolis, Minn.
O'Dwyer, Elizabeth M., 1726 Spruce Street, Philadelphia, Pa.
Olin, Mrs. Barbara, New York State Reconstruction Home, West Haverstraw, N. Y.
Peelor, Margaret, New York State Reconstruction Home, West Haverstraw, N. Y.
Ridder, Arlda Bernice, 306 Loma Drive, Los Angeles, Calif.
Sachs, Lt. Bette C., 5th Convalescent Hospital, overseas.
Schelter, Mrs. Roberta Craig, 1116 East Genesee Street, Syracuse, N. Y.
Schumer, Dorothy C., 944 East 14th Street, Brooklyn 30, N. Y.
Smith, Mrs. Lucile Webster, 595 Embarcadero Road, Palo Alto, Calif.
Tegart, Dona Gean, Memorial Hospital, Houston 2, Tex.
Thompson, Henry Nainoa, 500 Riverside Drive, New York 27, N. Y.
Trapp, Betty J., U. S. Naval Hospital, Charleston, S. C.
Trexler, Esther E., 142nd General Hospital, overseas.
Waier, Marie Elsie, Lawson General Hospital, Atlanta, Ga.
Watson, Lt. Adelina E., Wakeman General Hospital, Camp Atterbury, Ind.
Westcott, Eleanor J., 2665 South Sherman Street, Denver 10, Colo.
Wheeler, Anita M., U. S. Naval Hospital, Bethesda, Md.

Recent Graduates of Stanford University, Calif.:

Allgire, Mildred
Kilpack, Virginia
Montgomery, Marcelle S.
Van Cott, Barbara

Recent Graduates of Walter Reed General Hospital, Washington, D. C.:

DuBois, Sarah
Ford, Agnes R.
Ritsher, Ann C.
Rosen, Mildred
Schapiro, Mildred E.
Schluter, Joan
Speer, Gladys E.
Strobel, Phyllis R.
Tolmach, Bernice A.
Wadsworth, Mary
Wallis, Mrs. Louella
Wiley, Jean Louise
Wilson, Alice D.

Recent Graduates of Northwestern University Medical School, Chicago, Ill.

Atchison, Velma
Barton, Edith
Bates, Mrs. Magnolia M.
Brown, Thelma
Belfort, Juana R.
Dahlstrom, Esther M.
Dingley, Frances
Gornell, Jean
Holmes, Thelma N.
Johnson, Fannie W.
Jones, Rosella D.
Kerner, Marjorie J.
Pfrimmer, Norma
Shaber, Helen
Torres, Angela

Recent Graduates of Harvard Medical School, Boston, Mass.:

Beason, Mary C.
Brillhart, Elizabeth Lehr
Brown, Mrs. Mary Frances
Burns, Lois M.
Gilfoy, F. Elizabeth
Hannon, Mary M.
Hodgkins, Janice
Howard, Elizabeth Ellen
Humason, Hala Cole
Ionta, Marjorie K.
Leppala, Aune
Ryan, Mrs. Ellen H.
Walker, Mrs. Dorothy Coomes
Webster, Eileen
Wood, Eleanor Katherine

Recent Graduates of Lawson General Hospital, Atlanta, Ga.:

MacPherson, Mildred F.
Reading, Jane
Schnebly, Mrs. Elizabeth B.
Stallings, Ruth K.

Annotated List of Films Available for Rental: Suggestions for Chapter Meetings

Transverse Myelitis—prepared by the Institute for the Crippled and Disabled. Dr. George Deaver, 400 First Avenue, New York City.

Reconditioning of the Convalescent, prepared by the Reconditioning Consultants Division of the Office of the Surgeon General of the Army, Army Service Forces, Washington, D. C. 31 minutes.

Voyage to Recovery, prepared by the Rehabilitation Division, Bureau of Medicine and Surgery of the Navy, Washington, D. C. 25 minutes.

Out of Bed, Into Action, prepared by the Convalescent Service Division of the Office of the Air Surgeon, Army Air Forces, Washington, D. C. 17 minutes.

Swinging Into Step (rehabilitation of amputees) Office of the Surgeon General of the Army, Washington, D. C.

Back to Normal (rehabilitation of amputees) Film Division, British Information Services, 30 Rockefeller Plaza, New York 20, New York. 2 reels, 16 minutes, sound.

Accident Service. Physical exercise program for certain orthopedic conditions. Film Division, British Information Services, 30 Rockefeller Plaza, New York 20, New York. 4 reels, 40 minutes, sound.

Psychiatry in Action. The management of psychiatric cases. Good background material for physical therapists. Film Division, British Information Services, 30 Rockefeller Plaza, New York 20, New York. 7 reels, 70 minutes.

Teaching Crutch Walking O. E. 422. Distributed by Castle Films Inc., 30 Rockefeller Plaza, New York 20, New York. 13 minutes, 16 mm., sound.

Electrotherapy

The Electron O. E. 175, prepared by the Office of Education of the United States Government. Distributed by Castle Films Inc., 30 Rockefeller Plaza, New York 20, New York. 16 mm., sound.

The Diode O. E. 176, prepared by the Office of Education of the United States Government. Distributed by Castle Films Inc., 30 Rockefeller Plaza, New York 20, New York. 16 mm., sound.

Hydrotherapy

Therapeutic Uses of Heat and Cold, O. E. 408. Part I: Administering Hot Applications. 21 minutes. Distributed by Castle Films Inc., 30 Rocke-

feller Plaza, New York 20, New York. 16 mm., sound.

Therapeutic Uses of Heat and Cold. O. E. 409. Part II: Administering Cold Applications. 22 minutes. Distributed by Castle Films Inc., 30 Rockefeller Plaza, New York 20, New York. 16 mm., sound.

Hydrotherapy. O. E. 410. Distributed by Castle Films Inc., 30 Rockefeller Plaza, New York 20, New York. 22 minutes, 16 mm., sound.

Recreational and Occupational Therapy. O. E. 415. Distributed by Castle Films Inc., 30 Rockefeller Plaza, New York 20, New York. 16 mm., sound.

Feet. Prepared by Eastman Kodak Co. Distributed by Joint Orthopedic Nursing Advisory Service, 1790 Broadway, New York 19, New York. Silent, 16 mm.

Posture. Prepared by Eastman Kodak Co. Distributed by Joint Orthopedic Nursing Advisory Service, 1790 Broadway, New York 19, New York. Silent, 16 mm.

Film Misc. 1129. The Diary of a Sergeant. The case of a double arm amputee. Film Division, Office of the Air Surgeon, Washington, D. C.

Film TF 1-3463. The Road to Recovery. 50 minutes. Traces the experiences of three combat returnee patients in a convalescent hospital. Film Division, Office of the Air Surgeon, Washington, D. C.

MA 4106. Meet McGonegal. 11 minutes. The case of a double hand amputee. Audio-Visual Training Section, Bureau of Medicine and Surgery, Navy Department, Washington, D. C.

Your Fight Against Infantile Paralysis. 16 mm., sound. 15 minutes. National Foundation for Infantile Paralysis, 120 Broadway, New York 5, N. Y.

Medical Department Physical Therapists

Physical therapists now being released from active duty with the U. S. Army Medical Department who desire to make application for positions with the U. S. Veteran's Administration, U. S. Public Health Service, or any other governmental agency may now apply for such service without waiting for the expiration of their terminal leave from the Army.

Under provisions of Public Law No. 226, approved November 21, 1945, any person serving with the armed forces after May 1, 1940, who has been released under honorable conditions, may re-enter employment of the U. S. Government and shall, at the same time, be entitled to receive pay and allowances from the armed forces for the unexpired portion of such terminal leave at the same rates and to the same extent as if she had not entered or re-entered such employment.

The law provides further that, on application to the Secretary of War, remuneration shall be made in a lump sum equal in amount to the pay and allowances to which such person would have been entitled while on terminal leave for the unused portions of such accumulated and current accrued leave had she not entered or re-entered such employment.

Chartered Society of Physiotherapy

Physical therapists of the Medical Department of the United States Army stationed in England during World War II shall always remember with deep gratitude and appreciation the hospitality and courtesies extended to them by the Chartered Society of Physiotherapy, as well as the many professional advantages made available to them through the efforts of that organization.

Many of the physical therapists on duty overseas had for many years taken an active part in the programs of the local chapters of the American Physiotherapy Association. In England, no professional contacts were available except the publications which we continued to receive and the association with our own co-workers. Thus, the invitation of the Chartered Society of Physiotherapy to attend the annual conference of that organization in September 1943 provided the opportunity to add to our professional knowledge and to initiate a friendly relationship between the physical therapists of the two countries.

In spite of the fact that comparatively few American hospitals had arrived in England by the fall of 1943, the fifteen following physical therapists attended the conference: Lieutenants Harriet R. Meyer and Bernice Blodgett, 298th General Hospital; Lieutenants Mary P. Clancey and Florence Frask, 67th General Hospital; Lieutenants Marie Merrill and Tova Schwartz, 2nd General Hospital; Lieutenant Ruth Cook, 121st Station Hospital; Lieutenant Elinor Sherman, 115th Station Hospital; Lieutenant June McLeod, 228th Station Hospital; Lieutenant Ann Stromar, 130th Station Hospital; Lieutenant Elizabeth Blum, 228th Station Hospital; Lieutenant Dinah Selvin, 136th

Station Hospital; Lieutenant Mary Bussemer, 120th Station Hospital, and Lieutenants Edna M. Blumenthal and Olena M. Cole, 5th General Hospital.

Highlights of this two-day session were a lecture by Sir Reginald Watson-Jones, Civilian Orthopedic Consultant for the Royal Air Forces hospitals; an explanation and demonstration of the treatment of the amputee by Major R. Langdale-Kelham, Chief of the Limb Fitting Center in Queen Mary's Hospital, Roehampton, London; and an outline of the value of physical therapy in a chest surgery unit by Doctor Livingstone.

On the first day of the conference we were entertained at a buffet luncheon by the members of the Chartered Society, at which we were given the honor and privilege of meeting Doctor and Mrs. James B. Mennell. Doctor Mennell's profound interest in physical therapy is as well known as are his many publications in this field. Mrs. Mennell's friendly welcome will long be remembered by the members of our group.

During the conference a closer cooperation between American and British physical therapists was suggested by Miss D. Worsfold, Director of the Chartered Society, and plans were formulated for accomplishing this mutual desire.

Copies of the official publication of the British organization, a gift from the Chartered Society, were circulated among the physical therapists of the U. S. Army. Local chapters issued cordial invitations to attend their branch meetings and to take an active part in their various programs. Medical officers of the U. S. Army were invited to address these local gatherings.

It would be impossible to list all of the many kindnesses during the months spent in England. To mention but a few, however, should serve to demonstrate the cordial British hospitality.

Each year all American physical therapists stationed in England were invited to be present at the annual conference.

On June 26 and 27, 1945, the Richmond Branch invited all physical therapists to a two-day professional meeting and tour of British medical installations. Thirty-eight physical therapists attended and the following hospitals were visited: Queen Mary's Hospital, Roehamptom, where Miss Dodd, the head physical therapist, conducted a tour of the amputation and plastic sections of her department; Richmond Park Military Convalescent Depot, where the British system for the rehabilitation of the injured was explained to the visitors by Colonel Larg, the Commanding Officer, and St. Mary's Hospital, Paddington, where the methods of treatment by suspension and slings was demonstrated by Mrs. Guthrie-Smith.

An invitation from the London Branch to attend the Presidential Lecture of Sir Reginald Watson-Jones on July 11, 1945 was accepted by fifteen physical therapists.

Miss Olive Sands, C. S. P., Savernake Hospital, Marlborough, Wilchire, should be given credit for a major portion of the success of the liaison between British and American physical therapists. It was largely through the interests of Miss Sands, as well as the cooperation of the Ministry of Health, that in July and August of 1945 it was possible for American physical therapists to visit, observe, as well as to work in, representative British hospitals. Differences in treatment and technic were discussed, and many new and valuable ideas were gained.

Many of our military hospitals employed members of the British Chartered Society to augment physical therapy staffs when the increased volume of work became too heavy for the personnel available. Both groups soon found that although minor differences in methods existed, they consistently agreed on all important problems.

It is our earnest hope that the friendship and cooperation established during the difficult years of the War shall be but the beginning of a closer relationship in the years to come.

OLENA M. COLE, 1st Lt., MDPT
Office of The Surgeon General,
formerly with 5th General Hospital, ETO

Army Promotions

The Surgeon General of the Army announces the promotion of the following Medical Department Physical Therapists to the grade of First Lieutenant:

Stationed in the United States:

Adams, Carolyn—Mayo General Hospital, Galesburg, Ill.
Bender, Catharine—Lawson General Hospital, Atlanta, Ga.
Bennett, Constance—Kennedy General Hospital, Memphis, Tenn.
Boyko, Beatrice—Convalescent Hospital, Pawling, N. Y.
Brannon, Ruby—Regional Hospital, Camp Shelby, Miss.
Burgett, Linnia—Wm. Beaumont General Hospital, El Paso, Tex.
Calhoun, Virginia—Welch Convalescent Hospital, Daytona Beach, Fla.
Campbell, Catherine—Letterman General Hospital, San Francisco, Calif.
Canavan, Frances—Cushing General Hospital, Framingham, Mass.
Carlson, Fern—Rhoads General Hospital, Utica, N. Y.
Catlin, Eilleen—McGuire General Hospital, Richmond, Va.

Coyner, Katherine—Dibble General Hospital, Menlo Park, Calif.
Dalton, Nadylis—England General Hospital, Atlantic City, N. J.
De Pinto, Angela—Halloran General Hospital, Staten Island, N. Y.
Disney, Rhea—Gardiner General Hospital, Chicago, Ill.
Erickson, Hazelle—Gardiner General Hospital, Chicago, Illinois
Faggart, Agnes—Lawson General Hospital, Atlanta, Ga.
Finke, Elizabeth—England General Hospital, Atlantic City, N. J.
Forker, Janet—McGuire General Hospital, Richmond, Va.
Forman, Mary—Tilton General Hospital, Fort Dix, N. J.
Goldowitz, Yetta—Wakeman General Hospital, Camp Atterbury, Ind.
Hewitt, Dorothy—Moore General Hospital, Swannanoa, N. C.
Hickman, Beatrice—Brooke General Hospital, Fort Sam Houston, Tex.
Hillman, Evelyn—Lovell General Hospital, Fort Devens, Mass.
Hilss, Anna—Kennedy General Hospital, Memphis, Tenn.
Hoffman, Frances—General Hospital, Camp Edwards, Mass.
Johnson, Arlys—Regional Hospital, Fort Benning, Ga.
Kalinowski, Rosemary—McGuire General Hospital, Richmond, Va.
Knausz, Doris—England General Hospital, Atlantic City, N. J.
Latta, Harriet—Tilton General Hospital, Fort Dix, N. J.
Livaudais, Edna—England General Hospital, Atlantic City, N. J.
Lockhart, Bernice—Camp Florence, Ariz.
McKay, Kathleen—Convalescent Hospital, Fort Story, Va.
Mara, Evelyn—Newton D. Baker General Hospital, Martinsburg, W. Va.
Marble, Betty—Station Hospital, Fort Jackson, S. C.
Martin, Ann—O'Reilly General Hospital, Springfield, Mo.
Montgomery, Mary—Kennedy General Hospital, Memphis, Tenn.
Nesbitt, Winifred—Crile General Hospital, Cleveland, O.
Nichols, Betty—Rhoads General Hospital, Utica, N. Y.
Nichols, Helen—Valley Forge General Hospital, Phoenixville, Pa.
Pendleton, Rose—Station Hospital, Fort Totten, N. Y.
Peterson, Dorothy—Station Hospital, Staten Island, N. Y.
Ripanti, Norma—Station Hospital, Fort Benning, Ga.
Robinson, Mildred—Station Hospital. Camp Beale, Calif.
Salyer, Edith—Station Hospital, Camp Hood, Tex.
Schmidt, Marion—Station Hospital, Fort Sheridan, Ill.
Seliber, Natalie—Cushing General Hospital, Framingham, Mass.
Smith, Isabella—Woodrow Wilson General Hospital, Staunton, Va.
Stackstader, Mary—Crile General Hospital, Cleveland, O.
Swift, Lucille—Wakeman General Hospital, Camp Atterbury, Ind.
Todd, Virginia—Convalescent Hospital, Camp Edwards, Mass.
Turner, Evelyn—Lawson General Hospital, Atlanta, Ga.
Vaetsch, Margaret—Cushing General Hospital, Framingham, Mass.
Watson, Adeline—Wakeman General Hospital, Camp Atterbury, Ind.
Weaver, Paige—Army Medical Center, Washington, D. C.
Weiner, Katherine—General Hospital, Camp Patrick Henry, Va.
Williamson, Marjorie—Station Hospital, Kearns Field, Salt Lake City, Utah.
Wright, Frances—Newton D. Baker General Hospital, Martinsburg, W. Va.
Ybarra, Dorrys—Station Hospital, Camp Robinson, Ark.
Young, Margaret M.—Wakeman General Hospital, Camp Atterbury, Ind.
Young, Margaret T.—Madigan General Hospital, Tacoma, Wash.

Stationed Overseas:

Abrams, Wilma
Anderson, Mildred
Benson, Margaret
Bricker, Mildred
Cobb, Betsy
Emrick, Lillian
Gere, Eva
Giaciolli, Ruth
Greenstein, Sophie
Hoffman, Jean
Horne, Betty
Jiler, Florence
Johnson, Marjory
Lewis, Adeline
Lucas, Marian
Milversted, Dorothy
Rader, Marjorie
Rizzo, Corrine
Rule, Francis
Sauls, Janyce
Squiers, Beatrice
Urban, Alice

The Surgeon General of the Army announces the promotion of the following Medical Department Physical Therapists from the grade of First Lieutenant to the grade of Captain:

Anstey, Helen—Borden General Hospital, Chickasha, Okla.
Beatty, Jean—Office, Surgeon General, U.S.A., Washington, D. C.
Campbell, Enola—Madigan General Hospital, Tacoma, Wash.
Cole, Olena—Office, Surgeon General, U.S.A., Washington, D. C.
Conlon, Marcella—Nichols General Hospital, Louisville, Ky.
Desmond, Isabelle—Regional Hospital, Fort Knox, Ky.
Fairbanks, Emily—Birmingham General Hospital, Van Nuys, Calif.
Gibson, Catherine—Regional Hospital, Fort Ord, Calif.
Harris, Jean—Newton D. Baker General Hospital, Martinsburg, W. Va.
Hendricks, Lelia—Fitzsimons General Hospital, Denver, Colo.
Kuehlthau, Brunetta—Army Medical Center, Washington, D. C.
Twichell, Ellen—Tilton General Hospital, Fort Dix, N. J.
Uvick, Agnes—Station Hospital, A.A.F., San Antonio, Tex.

Twenty-third Annual Conference

American Physiotherapy Association

Blue Ridge Assembly, Blue Ridge, North Carolina, June 16 to June 21, 1946

Program Schedule

	Sunday June 16	*Monday June 17*	*Tuesday June 18*	*Wednesday June 19*	*Thursday June 20*	*Friday June 21*
8:00-10:00 a.m.		Registration*	V. A. Program: Donald Covalt, M.D., Chief of Rehabilitation, Veterans Administration, Washington, D.C.	P.T. in Treatment of Chest Conditions, Lt. Helen R. Winston, Fitzsimons General Hospital	P.T. in Treatment in Spinal Cord Injuries 2nd Lt. Irja R. Ryssy, Ashford General Hospital	P.T. in Orthopedics with Special Reference to High Resistance, Low Repetition Exercise Program, 2nd Lt. Mary K. Doherty, Fitzsimons General Hospital
10:30-12:00 noon		Registration*	Phys. Med. & Rehab. in the United States Public Health Service, Lt. Col. A. William Reggio, Washington, D.C.	P.T. in Overseas Installations, Capt. Olena M. Cole, Office of Surgeon General	War Dept. films pertaining to physical therapy activities in the Army	P.T. in Treatment of Vascular Conditions, 1st Lt. Georgiana Windham, Brooke General Hospital
				P.T. in Treatment of Head Injuries	P.T. in Treatment of Amputees, 1st Lt. Paige Weaver, Walter Reed General Hospital	P.T. in Treatment of Neurosurgical Conditions, 1st Lt. Edna L. Dillon, Percy Jones General Hospital
12:30-1:30 p.m.	Luncheon	Luncheon	Luncheon	Luncheon	Luncheon	Luncheon
2:00-4:00 p.m.	Registration*	Infantile Paralysis Round Table: Wm. Greene, M.D. Jessie Wright, M.D. Robert Bennett, M.D.	Cerebral Palsy Co-Chairmen: Miss Esther Hutchinson Miss Elizabeth Lanctot	Cerebral Palsy Co-Chairmen: Miss Esther Hutchinson Miss Elizabeth Lanctot	House of Delegates	Report to Membership on School Section
4:00-5:30 p.m.		Rest and Relaxation	Rest and Relaxation	Rest and Relaxation	Rest and Relaxation	Rest and Relaxation
5:30-6:30 p.m.	Dinner	Dinner	Dinner	Dinner	Dinner	Dinner
7:00-9:00 p.m.	P.T. School Section** Open to Membership	25th Anniversary Evening Meeting	House of Delegates	Executive Committee Allied Council	Evening Entertainment N. C. Chapter Hostesses	

*Registration fee: Members, $2.00; nonmembers, $3.00.

**The National Foundation for Infantile Paralysis is sponsoring meetings of the Medical and Technical Directors of the approved physical therapy schools. These meetings will be held prior to the opening of the conference. The session from 7:00 to 9:00 p.m., June 16th, will be open to any of the Association members who are interested.

Welcome to North Carolina!

The Carolina Chapter welcomes the American Physiotherapy Association to Blue Ridge, N.C., for the 1946 convention. This, the Twenty-Fifth Anniversary and first postwar conference, should be an outstanding one, and we are glad to have it in North Carolina. We hope that every member will come and help make this convention the best in A.P.A. history. Make your plans now to be at Blue Ridge, June 16 to 22, 1946.

Location of Blue Ridge Assembly

Blue Ridge Assembly is 15 miles east of Asheville on U. S. Highway 70, 3 miles from Black Mountain.

The Southern Railroad and the Queen City Trailways Busses offer easy access from Charlotte, Salisbury or Asheville. U. S. Highways Nos. 19, 23, 25, 70, and 74 come into Asheville.

Black Mountain is the Railroad, Bus Terminal, express and telegraph address for the Assembly.

Train Arrive:

From New York, Washington and the East

8:42 a.m. 2:35:p.m. 6:02 p.m.

From Chicago, Cincinnati and the West

11:42 a.m. 3:00 p.m. 4:00 p.m.

Trains Leave:

For Atlanta and South 3:40 p.m.
For New York, Boston and North 4:00 p.m.
For Chicago, St. Louis and West 7:00 p.m.

Plane Service:

Pa. Central Airlines

Norfolk, Va.—East, North, South

Lv. Norfolk 1:25 p.m. Ar. Asheville 5:21 p.m.
Lv. Asheville 8:57 a.m. Ar. Norfolk 12:41 p.m.

Pa. Central Airlines

Knoxville, Tenn.—West

Lv. Knoxville 7:10 a.m. Ar. Asheville 8:55 a.m.
Lv. Asheville 5:23 p.m. Ar. Knoxville 5:08 p.m.
C.S.T.

Taxi Service—Special arrangements have been made with all of the regular taxi companies operating out of Black Mountain to bring single passengers to the Assembly for 75c, or two or more passengers for 50c each, a distance of 3 miles.

Post Office—Blue Ridge Assembly has its own post office. A postmaster is in charge with all regular postal service available. The mail address is Blue Ridge Assembly, Inc., Blue Ridge, North Carolina.

Post-Convention Tour

Great Smoky Mountain National Park

Tentative plans are being made for a two-day post-convention tour of the Great Smoky Mountain National Park. The azaleas and rhododendrons should be at their loveliest at this time of year. Whether or not the trip is made will depend on the number who can make the tour.

JUNE 22

9:00 a. m. leave Blue Ridge with baggage. Blue Ridge bus.

10:00 a. m. leave Asheville in "through" busses for the entire two-day tour of the Park. Lake Janaluska—the Methodist Assembly grounds, the Balsam Range through Balsam Gap, the Tuckaseegee River into the Cherokee Indian Reservation—stop to see the craft, climb along the Ocono Luftee River to Newfound Gap through forest and great varieties of shrubbery, Skyline Drive and Clingman's Dome—the views are spectacular. On the Tennessee side of the park is heavy timberland and the greatest growth of rhododendrons found in the United States. Drive around Mt. LeConte past the Chimney Tops and to Elkmont for the night.

JUNE 23

Motor down the Little River and through the Gorge to Maryville—home of Maryville College, pass lovely Calderwood Lake and wind up the heights to Deal's Gap with breath-taking views of mountains and gorges that you will long remember and want to see again. Now descend into North Carolina along the Little Tennessee River to Tapoco Lake. Pass Santeetlah Lake and then follow the Nantahala Gorge and on emerging see Andrew's Bald, Forney's Ridge and other peaks more than a mile high. Continue to Bryson City and return to Asheville for the late afternoon and evening trains.

The price for the Smokies Tour will be $26.25 per person for those taking double rooms. This includes round trip motor-coach transportation with driver-guide, Federal and State taxes, hotel rooms with twin beds, meals and all tips. Single rooms will be $1 additional. The guide is important through this area that the geography, history and the local aspects may be better understood.

The above itinerary is subject to change,

though little change, if any, is anticipated. If you are interested write:

Mr. Leon V. Arnold
Hotel Holley
36 Washington Square W.
New York, N. Y.

Traveling North Carolina

North Carolina is a continent in miniature for the traveler of its 12,000 miles of primary highways and its 20,000 miles of secondary roads.

In the west the mightiest mountains of the eastern seaboard rise in splendid majesty to the skies; in the middle reaches, an empire of industry flourishes in the hills of the Piedmont Country; on its fringe a desert wasteland has been transformed into a gigantic peach orchard and the Winter golf capital of America; miles upon miles of a rich coastal plain given entirely to agriculture and gardens stretch to an ocean held at bay by long arms of monster sand dunes which enclose deep sounds teeming with fish and wildfowl.

On the coast is the oldest English-settled spot in America, the Dare Country and Roanoke Island where the poignant tragedy of Virginia Dare, first English child to be born in America, is re-enacted each year in a huge outdoors theater. In the far western region, Great Smokies National Park, though traversed by fine roads and trails within the last ten years, is as primeval as the Creator made it. Between them, the life of America is spread out, great plantations behind the fisherfolk of the coast, a strip of continental playground in the sandhills, the teeming life of industrial America in the Piedmont hills, and the exotic arts of America gathered in colonies in the Blue Ridge Mountains, companionable guardians of the Great Smokies.

Best of all routes to enter North Carolina to see its beauties is over the Blue Ridge Parkway, a modern highway of easy grades and safe curves which rides the very tops of the mountains, never deigning to come lower than 3,000 feet above the humble sea-level. This most magnificent highway in America leads to, or is the key to, the most beautiful scenery of America, the Blue Ridge Mountains and the Great Smokies, the National Forests, the Sapphire Country, the Lake Lure Country, the Mitchell and Grandfather Countries, the Handicraft Trail, Little Switzerland's art colonies, and the folklore of three hundred years of mountain living.

Within the 440,000 acres of Great Smokies National Park lies the largest remnant of American wilderness, where Nature has hoarded the richest treasures of the forests, shrubs, trees, flowers, animals, birds, and the Cherokee Indians who plan to make of their primeval homes retreats for America's travelers. Two National Forests, Pisgah and Nantahala, make the greater part of North Carolina mountains a continuous playground. The two forests embrace many of the resort towns of western North Carolina, and the traveler can find any type of stopping place —from the most exclusive hotels to dude ranches and tourist cabins.

East of the Smokies and south of Asheville two routes lead through the Blue Ridge Mountains and the Sapphire Country, favored spot for vacationists. The northern route goes through Balsam Gap, old pioneer path to Asheville, through thriving industrial communities utilizing the power of the TVA lakes. The southern route is spotted with rivers, waterfalls, lakes, and facilities for outdoor life, picnic areas, shelters, and camping grounds. Beautiful Hiwasse Lake is at the western terminal, Chatuge and Nantahala Lakes are along the way, and Wayah Bald, Bridal Veil Falls, and Whiteside Mountains top the 4,000 feet high roadway.

Asheville is the mountain capital of America, situated upon a broad plateau in the heart of the mountains, with many hotels and homes for travelers, with all the facilities for outdoor sports and indoor entertainment. Southeast of Asheville is Hickory Nut Gap, region of spectacular stone precipices, famed Chimney Rock, Rumbling Bald, and a land of legend from the days of De Soto who led his men through the Gap in search of El Dorado. West on Route 64 is Hendersonville, center of a region of children's summer camps, and nearby are Flat Rock, oldest resort community in North Carolina, and Tryon, noted for its horse shows, fox hunts, and literary colony, and its peculiar thermal belt climate which makes it a year-round resort.

Between Asheville and the Mitchell Country where mighty Mount Mitchell juts 6,665 feet into the clouds from the somber reaches of the Black Brothers Range whose sides are black, unlike the green and gay colors of the other ranges, with balsam and fir, along the traditional inlet to the mountains from the east are small towns and the retreats of several religious denominations at Old Fort, Black Mountain, Montreat, Blue Ridge, and Ridgecrest. Atop Clingman's Peak, neighbor to mighty Mitchell, is the

most powerful radio station in America, WMIT, one of the first frequency modulation stations to open.

North of Asheville is a spectacular mountain country dominated by Grandfather Mountain, often called "the oldest mountain in the world" by geologists and looking like a bewhiskered old man asleep. Higher than Grandfather is Roan Mountain, towering 6,287 feet, and the water of Linville Falls which has dug a gorge few white men have crossed. Famed Blowing Rock is there, with a constant wind which returns articles thrown from its face, and Roaring Gap, resort town built atop a mountain. At Penland is a handicraft school, an art school at Little Switzerland, a college at Banner Elk and at Boone, and resort hotels, homes, and cabins at every turn of the road.

Descent to the busy industrial life of the Piedmont may be made through inspiring Lake Lure below Chimney Rock into a land of blue waters impounded for the hydroelectric power which turns the wheels of one of the richest regions in America; over the abrupt escarpement at Roaring Gap to the lower Sauratown Mountains (only east-west range in America) and lonely Pilot Mountain raising its Acropolis-like peak above the plain; or straight down Route 70, Main Street of North Carolina, into a region of town after town, mill after mill, and factory after factory. Here lies the wealth of a great commonwealth, and one of the richest regions in the world, the land of tobacco farming and manufacturing and of cotton making into textiles and clothing, and, too, of the nation's greatest household furniture industry.

The Piedmont Country, rolling hills and winding roads of sudden and inspiring charm, is a busy land, a land of farmers who work through the year's seasons on tobacco crops and of town folk who labor three shifts each day to convert the crops into products which go to the four corners of the world. But it is a hospitable land; its homes and its factories are open to visitors, and its famous landmarks and schools the gathering places of those who wish to see the birth and growth of a modern civilization.

For the Piedmont is an ancient land, as age goes in America, and it abounds in historic sites: Charlotte, largest city of the State, site of first settlements of Scotch Highlanders and of the first Declaration of Independence (the Mecklenburg Declaration); Old Salem, twin to Winston-Salem, tobacco center of the world, with its 1774 Moravian settlement largely intact and its graveyard where gather as many as 50,000 people on Easter Morn; Greensboro, traffic center and scene of the decisive battle of the American Revolution at Guilford Courthouse; Hillsboro, hotbed of the Regulator Movement; Durham, with beautiful Duke University within its limits and the oldest State University twelve miles away at Chapel Hill; Raleigh with its beautiful capital, State offices, and museums; and Belmont nearby and the nation's only Cathedral Abbey.

The sandhills of North Carolina are geological anachronisms never explained, long miles of hills and valleys of pure sand miles from the sea and yet undoubtedly of marine origin. It is a country dominated by the longleaf pine, by the peach orchards which stretch for miles, and by the resort towns of Pinehurst and Southern Pines, winter golf capital of America and year-round resorts. Pinehurst is a lovely village hidden beneath the shrubbery of its own subtropical climate; Southern Pines a country club covering almost a county. In the early spring peach blossoms and dogwood against the soft green of longleaf pines paint pictures North Carolinians ride miles year after year to see.

North Carolina's coastal plain is a remnant of the Old South, seat of an old plantation system

where agriculture is undisputed king It is a land of historic atmosphere, where men have lived long, where the land has produced crops, where tradition has gathered together the beauties of old homes, of quaint characters, of a leisurely people who'd as lief close shop to attend a barbecue or a fish fry as to make a business deal. There are few formal vacation resorts, but there is no need for them; every home is a resort.

On the upper route, tobacco auctions in the early fall attract thousands to the busy scenes in Wilson, Kinston, Greenville, Rocky Mount and a dozen other towns. In the spring strawberries are auctioned in Wallace and Chadbourn, and Little Washington and Wilmington are flower beds of tulips, gladiola, and other flowers. In all the towns of the lower plains, at the mouths of the rivers which run to the sea, in New Bern, Fayetteville (Fort Bragg, largest military encampment in the world is nearby), Hertford, Edenton, Elizabeth City, are gathered the history and the lore of Carolina in historic old buildings and homes.

And on a tiny, windswept island, safe within the arms of the Outer Banks, a great stretch of sand bars from Virginia to the South Carolina line, are the beginnings of America, the first English settlement, the first flight of a heavier than air machine, on Roanoke Island, scene of "Lost Colony," symphonic drama presented from July to October. On the banks the sea dominates all life. Fishing and coast guarding are the principal occupations, hulks of famous wrecks strew the seaward shore, and nowhere do fish bite so well, and nowhere are natives more willing or better equipped for fishing.

Within the Banks, and stretching two-thirds of the width of the state are great sounds, Albemarle, Croatan, and Pamlico, favored haunts of fishermen and hunters, and dotted with small beaches on sound water and river mouths. Good roads connect the towns and ferries run to the Banks and boats through the Inland Waterway, a devious route hugging the shore of a thousand inlets. Morehead City is the saltwater fishing capital of the State, and the beginning of the bathing beaches whose safe waters and sunshiny weather attract thousands of uplanders each year.

Opposite Morehead City is Atlantic Beach, one of the few east-west beaches south of Long Island (and much warmer!), and north is Atlantic, eastern terminus of highway 70, North Carolina's Main Street. Southward through Jacksonville, New River Marine Base, and Camp Davis, on Route 17, the Coastal Highway, is Wilmington, historic, busy with ocean traffic, and center of five bathing beaches, Carolina, Wilmington, Wrightsville, Kure, and Fort Fisher. Close by is Orton Plantation, most beautiful azalea gardens in the State and a perfect restoration of an old plantation home. North of the port, at Burgaw,

is the famous Big Savannah, natural flower garden with new flowers each month of the year excepting January.

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ABSTRACTS

John S. Coulter, M.D.

Physical Therapy and Reconditioning Therapy at Fitzsimons General Hospital, Denver

Major Ora L. Huddleston, Medical Corps, United States Army. In ARCHIVES OF PHYSICAL MEDICINE, 27:1:11, January 1946.

Physical therapy is classified as definitive therapy comparable to that administered by other sections of the medical and surgical services. Remedial exercises, which include muscle reeducation, require the personal attention of qualified physical therapists and qualified occupational therapists. This precludes the use of mass production methods, which are commonly employed in group exercise programs.

The physical therapy and reconditioning programs are coordinated to supplement each other. The activities of the former are directed largely toward improvement of the injured or diseased structures, and those of the latter toward improvement of the uninjured and diseased parts of the body. The definitive treatments of the physical therapy section likewise are supplemented by therapeutic occupational therapy. For maximum efficiency of the occupational therapy and physical therapy departments, their therapeutic programs should not only supplement but augment each other.

Short Leg Backache

John M. Butler, M.D., Hot Springs, South Dakota. In THE JOURNAL LANCET, 66:1:11, January 1946.

Lest we, as professional people, get to the point where "'we cannot see the trees for the forest," it is considered timely to present this rather simple explanation of many cases of backache for the consideration of those men who first see the patient.

The symptoms of which these patients complain are many and varied. Pain in some region of the back is the most common and next in frequency is nervousness and easy fatigability. Other complaints are inability to sleep, pains radiating around the chest, pains in the legs and knees, suboccipital head and neck pains and pains in arms and shoulders. Pain of sciatic radiation is frequently encountered. In the past three months seven patients with sciatic pains have been cured by the therapy outlined below.

The short leg is a common cause of muscle imbalance or of the so-called postural imbalance in an apparently otherwise healthy individual.

Many of these patients who come to seek relief from backache can be diagnosed merely by careful observation of their gait and standing habits. In men, one frequently sees that the belt of the trousers does not set parallel with the floor but instead, tips to one side. In

women, one hip is more prominent and the hollow of the flank is less on one side. One shoulder, almost without exception, is carried low and if fairly snug clothing is worn, one can notice the scoliosis in the back. In watching these patients walk, it is very easy to notice the heavy step on the short leg side.

In examining these patients unclothed, all of the above mentioned findings are exaggerated and more clearly seen except those in reference to the way clothing is worn. In addition to these, one can readily detect spasm along the back muscles by palpation. Also, one finds the patient must be asked to stand squarely on both feet for he is prone to stand with the weight entirely on one leg and use the other merely as a balance prop. Another finding in these cases is the unilateral development of lower extremity varicosities. The ankle valgus usually is on the short leg side, whereas it has been impossible to establish a rule for the side in which the varicosities develop. It seems that varicosities develop according to the standing habits of the individual—some prefer standing on the longer leg, others on the shorter one.

In further checking, one will notice that the posterior spinous processes fail to fall in a straight line. As pointed out by Sever, the posterior spinous processes should align under a weighted string so held that the lower end hangs in the gluteal cleft.

After the amount of shortening has been determined, the patient is instructed to compensate for this shortening by one of the following methods. In women, the advice varies with the height of heels they are accustomed to wearing on their shoes. A cuban type heel fortunately is more commonly encountered and lends itself more readily to alteration. To compensate for one half inch difference they are asked to have one fourth inch put on the heel of the short leg and remove one fourth inch from the heel of the long leg shoe. Often one can place a one fourth inch lift on the inside of the short leg shoe. Any arrangement of alterations—adding to a heel, cutting off a heel or a combination of these two, or pads placed under the heel in the shoe will usually accomplish the purpose in women, who are more used to walking with the weight thrust more toward the metatarsal heads.

In men, one cannot as a rule make great changes in heel heights without running into difficulty. Consequently, men are advised to have the shoe on the short leg side half-soled and then make the heel adjustments where the difference is one half inch. When the leg shortness is greater than one half inch, it is better to put more lift on the sole rather than to make too much change in the heels alone.

Introducing the Rehabilitation Director

Albert Lasky, Assistant Director, Montefiore Hospital, New York City. In THE MODERN HOSPITAL, 65:1:64, July 1945.

The rehabilitation director, in administering the program, must be trained to oversee the entire rehabilitation planning of the handicapped individual, most of it on a long-term basis. He must first take into consideration the physical condition of the patient, his length of stay at the hospital, his chances of recovery, his work capacity and the time when he will reach his maximum work tolerance. There may be social problems for the patient or the family from which he is separated, economic problems, psychologic and adjustmental problems.

The well-trained rehabilitation director in the process of developing the rehabilitation plan for the patient will fit in the various specialists at a period in the long-term plan when the patient can benefit most from their services and when the efforts of one specialist will not interfere with those of another.

It is obvious that these administrators in the field of rehabilitation should possess a good knowledge of the work of all the interested specialists. These men and women must be specially trained. The course of training for such specialists should be offered preferably in the university schools of education. It should be given on a graduate level and be of from one and one half to two years' duration and should include from six to nine months of practical internship in the various phases of rehabilitation, namely, in the hospital, with the public rehabilitation services and with related private community resources. The course of training should lead to a master's degree.

The study program should include, in addition to psychology and introduction to mental hygiene, the following suggested courses:

1. Introduction to rehabilitation.
2. Elementary and advanced theory of occupational therapy.
3. Occupational analysis and information.
4. Measurement of intelligence (including practice in administration and interpretation).
5. Case studies in rehabilitation.
6. Descriptive statistics.
7. Counseling technics.
8. Vocational tests and measurements (including practice in administration and interpretation).
9. Placement and personnel procedures.
10. Social case work theory.
11. Problems and methods in adult education.
12. Labor problems and legislation.
13. Community organization and resources.
14. Recreation for the handicapped.

Damaged Intervertebral Disc: Early Diagnosis and Treatment

In LANCET, London, 2:421-452, Oct. 6, 1945. E. J. Crisp—p. 422. Abstracted in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 130:3:180, January 19, 1946.

Crisp states that clinically cases of damaged intervertebral disc are distinguished by extreme and persistent spasm of the lumbar portion of the erector spinae muscle and hamstring spasm of less severity. When the patient stands erect, little abnormal is noted beyond a slight increase in the lumbar curve, but on bending forward to touch the toes lumbar spasm becomes obvious. This is sufficient to prevent forward flexion in the joints of the lumbar spine, for there is movement only at the hip joints and the upper dorsal region. The patient will complain of aching lumbar pain, which is aggravated by movement and coughing and often radiates into the groin. There is tenderness to deep pressure over the sacroiliac joint and the interspinous ligament of the affected segment. The sacroiliac tenderness often develops first; this may explain diagnostic errors. The author treated these cases by complete rest, either in bed or in a plaster jacket. Results in the cases so treated have been satisfactory. The patients have lost their lumbar pain, they have not developed sciatica and they have been discharged from the hospital in six to eight weeks with some residual, but permanent, stiffness of the back. Cases which escape diagnosis until after the onset of sciatic pain may be divided into two groups, depending on whether the annulus fibrosus is partially or completely ruptured. The former group may be recognized by the fixed lumbar lordosis, the latter by the fixed lumbar kyphosis. Both groups usually respond well to immobilization in a spinal jacket.

Principles in Early Reconstructive Surgery of Severe Thermal Burns of the Hands

Byron Smith, Major, M.C., U. S. Army; Carleton Cornell, Major, M.C., U. S. Army, and Charles L. Neill, Major, M.C., U. S. Army. In THE BRITISH JOURNAL OF SURGERY, 33:130:159, October 1945.

Postoperative Care

The total period of splinting and postoperative elevation is five days. Dressings are washed away in an arm tub bath on the fifth day. Meticulous care and abundant saturation is required to prevent the separation of the graft from its recently acquired bed. Cocoa butter is appiled to the surface of the graft and further dressings are eliminated. During the daytime while the patient is awake the graft needs no protection other than good cooperation of the patient. At night the graft is covered with a well-padded loose dressing to protect the hand from trauma during sleep. The submersion baths are resumed three times a day. Elevation is continued when the hand is at rest. The rehabilitation exercises are directed towards flexion and extension.

The ease with which the motion of adduction of the thumb to the extended fingers is performed cannot be selected as a criterion of good function. Restoration of normal function in a hand is dependent upon a wide range of motion in the interphalangeal joints. Unless the patient is specifically instructed, a tendency to substitute motion in the metacarpophalangeal joints for flexion and extension of the interphalangeal joints is outstanding. Neglect of early full motion of the interphalangeal joints is an open invitation to permanent dysfunction and deformity. Encouragement and constant attention is demanded if good functional results are expected.

Elevated healed edges around the graft at the junction with normal skin is only of temporary cosmetic concern. Spontaneous leveling of the margin and blending of the graft with normal skin occurs during rehabilitation and requires no surgical intervention. Transient cyanosis in the graft during the postoperative period is not uncommon. The appearance of a serous subepithelial bleb is an indication of excessive dependency of the extremity or activity beyond the tolerance of the graft. Elevation should be increased, activity decreased, and bullae aspirated. Occupational exercises and clay modeling are extremely effective.

Summary

1. Deformity and disability resulting from thermal burns of the hands may be reduced by early management.

2. Regulations directing the proper use of protective fire-resisting apparel will reduce burn hazards in military operations.

3. Characteristic war-time burns of the hand involve the tissue over the dorsum of the hand and fingers, with a tendency to encircle the wrist.

4. Initial treatment is directed toward prevention of infection and restoration of function.

5. Infection and exposed tendons and bones do not contraindicate early grafting.

6. Radical excision of slough, granulation tissue, and poorly developed epithelium prepare the recipient surface for a split-thickness graft.

7. The graft is sutured in place under the tension of normal skin.

8. Postoperatively, dressings and splints are removed on the fifth day.

9. Rehabilitation exercises are resumed until maximum functional activity is accomplished.

Chronic Lumbar Backache

Clarence A. Splithoff, M.D., Orthopedist, Samuel Merritt, Providence and Alameda County Hospitals, Oakland, California. In THE AMERICAN JOURNAL OF SURGERY, 71:1:125, January 1946.

We will place this patient on a program of therapy, that for simplicity in discussion will be the same for every case of this type, but which can be varied to suit individual requirements. The treatment is outlined as follows:

1. General therapy
   - (a) general toning up
   - (b) lumbar belt
   - (c) corrective shoes
   - (d) see patient frequently
2. Physical therapy
   - (a) radiant heat
   - (b) massage
   - (c) exercises
3. Home therapy
   - (a) bed boards and mattress
   - (b) radiant heat or other forms
   - (c) exercises

General Therapy. The weak back must not be considered a simple local problem, for many times there are general conditions which may prolong the disability. The question of adequate sleep in the prevention of fatigue, of the patient's working and living environment and of his general health, all must be considered. Some form of mild sedative or analgesic may be needed for a short period. A change of occupation or duty is sometimes also necessary.

Conclusions

1. Man, as a result of assuming the upright posture, has inherited a potentially weak structure, the lumbosacrum.

2. This area is subject to anomalous changes and is therefore not in equilibrium.

3. This area may be easily overburdened by poor posture, obesity, asthenia, and trauma such as slips or falls resulting in chronic low back disability.

4. Every case should be carefully studied to rule out obvious causes of disability such as protruded intervertebral disc, infections, fracture, arthritis, anomalies, etc.

5. Those cases which remain can be treated with gratifying results by a program such as outlined in this paper.

Galvanic Tetanus and Galvanic Tetanus Ratio in Electrodiagnosis of Peripheral Nerve Lesions

Lewis J. Pollock, M.D., James G. Golseth, M.D., and Alex J. Arieff, M.D., Chicago, Illinois. In SURGERY, GYNECOLOGY AND OBSTETRICS, 81:5:666, December 1945.

We have called attention to the importance of studying galvanic tetanus resulting from the passage of a strong galvanic current through a muscle apart from other changes in the character of the contraction of a muscle. Tetanus results when a galvanic current conveying stronger current than that necessary for liminal stimulus is used. It has been variously called "myotonic reaction," "galvanotonus," and "galvanic tetanization." Since it results from galvanic stimulation we propose it be called "galvanic tetanus." As the absolute value of the threshold amperage for tetanus may be quite high when the rheobase is high because of changes in the tissues

such as edema, etc., it is valuable to estimate the ratio between the threshold amperage for tetanus and the rheobase. This ratio has been variously called "polarization coefficient" and "contraction coefficient." Since it is the ratio between the threshold amperage of galvanic current for tetanus and the rheobase, we propose it be called the "galvanic tetanus ratio."

Since the contractions resulting from stimuli by progressive currents of long duration are tetanic and since, as is the case with galvanic tetanus ratio, the ratio of the threshold amperage for contraction from stimuli by progressive currents approaches or is at unity during denervation, it is our opinion that progressive currents resulted in the same prolonged excitation as occurred when a strong current was suddenly passed through muscle resulting in tetanus.

The characteristics of a denervated muscle have been shown to be a minimal threshold amperage for galvanic tetanus, a unity of the polar ratio and a tetanus ratio approaching or at unity, both for anodal and cathodal stimuli; those of regenerating muscle are a high threshold amperage for tetanus and a very high, often unobtainable, tetanus ratio. When sufficient time has elapsed after injury or operation for denervation to have developed and a high threshold amperage for tetanus and a high tetanus ratio are found, the nerve is regenerating. On the other hand, when sufficient time has elapsed for recovery and a low threshold amperage for tetanus is present and the tetanus ratio approaches or is at unity, operative treatment is indicated.

Conclusions

1. A moderately high threshold for galvanic tetanus and a high tetanus ratio characterize a degenerating nerve-muscle complex.

2. A minimal threshold for galvanic tetanus and a tetanus ratio approaching or at unity, both for anodal and cathodal stimuli, are characteristic of denervated muscle.

3. A high threshold for galvanic tetanus and a very high tetanus ratio are characteristic of a regenerating nerve-muscle complex.

4. These characteristics found in experimental studies in the cat have been confirmed by us in man.

The Treatment of Compound Fractures of the Femur

Lt. Col. Ralph Soto-Hall and Lt. Col. Thomas Horwitz, Medical Corps, Army of the United States. In THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 130:3:133, January 19, 1946.

Exercise therapy of the thigh muscles should be started as soon as the wound is healed. Static exercises, such as quadriceps setting, can be done in a Thomas splint suspension or in a plaster spica. These exercises should be repeated throughout the day and should be done with considerable force in order to be efficacious. Remedial exercises should at first be given to correct the atrophy and later to produce agility, coordination and endurance. It is important to separate these two phases and to maintain in one's mind the important principle that exercise therapy must have resistance to produce power and hypertrophy, and repetition of movement to lead to endurance. Application of exercise on this basis has led to the most encouraging results that we have seen. Capt. Thomas DeLorme has applied the paraphernalia of professional weight lifters, consisting of an iron boot with attached bar bells, in order to produce resistive exercises for these femoral fractures. This has led to a remarkable increase in muscle power and in stability of the knee, with a secondary increase in joint motion. This change from the passive to active exercise offers hope for the future, when thigh muscles are seen in the injured side which may at times have a greater circumference than those of the normal thigh. Because of the ability to introduce exercise therapy so much earlier, cases which have had a successful delayed wound closure result in better function.

Early and adequate debridement is the most vital factor in the successful treatment of a compound wound.

Modern chemotherapy has not altered this opinion, although the use of bacteriostatic drugs has brought brilliant results in controlling the invasive infection and in reducing the number and severity of complications.

The principle of converting an open fracture into a closed one by delayed wound suture is strongly endorsed because it insures, with minimal hazard, rapid healing and little scar formation.

Conservatism in removal of large bone fragments is advocated, since it lessens major problems of reconstructive surgery.

An analysis of 163 fractures of the femur treated in various theaters of war indicates that extremely gratifying results are being obtained with the conservative treatment of traction in balanced suspension. There has been a low incidence of sepsis and a high percentage of bone union without deformity.

The use of early internal fixation in the presence of an open wound is accompanied by greater danger of complication. When indicated, in a few selected cases, internal fixation is safer if performed soon after the healing has been completed following secondary closure. The operation should be performed through a separate longitudinal incision with temporary counter drainage. When the type of fracture permits, multiple screw fixation is superior to the use of plates because of lessened surgical trauma.

The early use of active exercise, with carefully supervised resistive exercise during convalescence, offers a hopeful opportunity for the improvement of knee function.

Late Rupture of Extensor Pollicis Longus Tendon Following Colles' Fracture

Frederick M. Smith, M.D., New York, N. Y. From the Fracture Service of the Presbyterian Hospital, and the Department of Surgery, College of Physicians and Surgeons, Columbia University, New York City. In THE JOURNAL OF BONE AND JOINT SURGERY, 28:1:59, January 1946.

Conclusions

1. Late spontaneous rupture of the extensor pollicis longus tendon following Colles' fracture is a rare complication, and one that is not often recognized. This paper adds five cases to those previously reported in the literature.

2. The rupture is, in all probability, due to aseptic necrosis of the tendon, following injury to its blood supply.

3. The history and physical signs are very characteristic.

4. Return of function without operation cannot be expected. With operation, a good to excellent return of function may be expected.

5. Stress has been laid upon the dual function of the oblique pull of the extensor pollicis longus tendon, and a method of repair has been suggested to accomplish this functional restoration.

Psychosomatic Concepts in Physical Medicine

Barbara Goldberger, M.D., and Jacques Goldberger, M.D., Saratoga Springs, N. Y. and New York City. In ARCHIVES OF PHYSICAL MEDICINE, 27:1:11, January 1946.

The object of this presentation is to condense some of the principles of psychosomatic medicine and to outline their application in physical medicine.

Summary

Psychosomatic conditions are those in which, although somatic symptoms prevail, psychic factors play an important part. Patients who are suffering from such conditions do not always show manifest symptoms of emotional imbalance; therefore, the psychic factors which are underlying or complicating their condition often remain undetected, and this fact may delay or prevent recovery. The number of such patients is especially large among war veterans and former war workers, who were under continuous stress for a long period. As such patients are often encountered in the practice of physical medicine, it is imperative that physical therapy physicians become acquainted with the principles of psychosomatic medicine and their application.

Study of the Late Symptoms of Cases of Immersion Foot

Everett G. Fausel, M.D., F.A.C.S., Major, M.C., A.U.S., Hollis, New York and James A. Hemphill, M.D., Captain, M.C., A.U.S., Mount Holly, New Jersey. In SURGERY, GYNECOLOGY AND OBSTETRICS, 81:5:503, November 1945.

A group of 65 patients were studied 14 months after the incurrence of immersion foot. Of these, 49 had been found to have complaints, and 42 had been found to have abnormal physical findings associated with chronic peripheral vascular disease, secondary to immersion foot.

1. Secondary symptoms and findings following immersion foot are quite common and more persistent than usually thought.

2. The main complaints are evidently rest pain, numbness of the legs or feet, subjective coldness of the legs or feet, and increased perspiration of the extremities.

3. The incidence of abnormal physical findings, particularly planter ischemia, development of superficial variocosities, and decreased peripheral arterial pulsation of the dorsalis pedis artery, mainly unilateral and corresponding to the primarily affected extremity, exists in a surprisingly high proportion of patients presenting complaints.

4. It is our opinion that these complaints and findings are on the basis of fibrosis of the extremity, secondary to the initial inflammatory reaction after immersion, rather than to secondary angiospasm.

5. The persistance of peripheral vascular disease, secondary to immersion foot, should be brought to the more serious attention of surgeons dealing with immersion foot. This is particularly true in view of the fact that these cases may be a source of future persistent disability and liability to the government.

Thrombophlebitis and Phlebothrombosis

Lawrence L. Hobler, M.D., F.A.C.S., Elmira, New York. In NEW YORK STATE JOURNAL OF MEDICINE, 46:2:179, January 15, 1946.

It is important from etiologic, prognostic, and therapeutic standpoints to distinguish between the two major types of intravenous clotting: thrombophlebitis and phlebothrombosis. Ochsner and DeBakey define thrombophlebitis as a partial or complete venous occlusion by an intravascular clot which is associated with and dependent upon inflammation of the vein wall. They define phlebothrombosis as a partial or complete venous occlusion by an intravascular clot which is unassociated with inflammation, the clot remaining loosely attached to the vein wall.

The most important phase of treatment is in the prevention of these conditions or prophylactic treatment. It is well stated that the greatest single factor favoring thrombus formation in the lower extremity is the sudden bed confinement of a previously ambulatory older person without the benefit of exercise or the aid of gravity in the maintenance of an efficient venous circulation. The obese patient should have preoperative reduction of weight if possible. Varicose veins should be treated, if possible, in the preoperative period and in the postoperative period should have Ace number 8 bandages applied. Smoking should be reduced pre- and postoperatively. The patient's extremities, during and following surgery, should be kept warm. Some authors routinely use a heat cradle. Tight abdominal binders should not be used. Dehydration should be avoided and fluid balance well maintained. Ileus should be prevented or reduced as quickly as possible. Active motion of the legs should be instituted early. The patient should be gotten out of bed as soon as is compatible with his general condition and the surgery which has been done. The gradual reduction of the postoperative bed confinement period in recent years has markedly decreased the incidence of thrombophlebitis as well as decreasing the disability period following surgery. Fowler's position should be modified by having the legs elevated. The latter will increase the amount of flexion of the thighs on the abdomen.

Fracture of the First Cervical Vertebra, Complicated by Cervical Rib

Albert P. Guadagni, M.D., Surgical Resident, St. Luke's Hospital, San Francisco. In THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 130:5:277, February 2, 1946.

Fractures of the cervical vertebrae are not very unusual. Fractures of the first cervicel vertebra are fairly rare.

Report of Case

B. R., a Negro aged 40, admitted to St. Luke's Hospital to the service of Drs. G. D. Delprat and Alanson Weeks on December 15, 1944, had been struck on the head by a sack of grain. X-rays showed a fracture of the first cervical vertebra near the junction of its posterior and middle thirds, the fragments being in satisfactory position. Also there was a long rib attached to the right transverse process of the seventh cervical vertebra.

Preliminary treatment consisted of head traction, with only slight relief, and hot compresses to his painful shoulder. On December 19 he was placed in a plaster jacket with a helmet included, this holding the head in slight extension and with great comfort to the patient. On December 28 he was allowed up in a chair and after a few days was able to walk. The patient was subsequently discharged ambulatory.

On Feb. 9, 1945, the cast was removed and X-ray examination at this time showed the fragments to be in good position with callus present. A plaster (Thomas) collar was then applied, this being split after eight weeks to allow physical therapy three times weekly, the collar being reapplied after each treatment. After

a month the collar was removed permanently. X-ray examination on March 7 showed partial bony union with the fracture line still visible, and a film on May 4 showed almost complete bony union.

At present the patient still has physical therapy three times weekly for residual stiffness and slight pain in the neck. Rotation of the head is limited about 20 per cent. He has occasional ulnar paresthesia in the right hand apparently due to the presence of the aforementioned cervical rib.

Physical Medicine in the Army: Its Effect on Civil Practice

J. W. T. Patterson, M.D., F.R.C.P. Ed., Lieutenant-Colonel, late R.A.M.C.; late Assistant Director of Hygiene, War Office. In THE BRITISH JOURNAL OF PHYSICAL MEDICINE AND INDUSTRIAL HYGIENE, 8:6:163, November-December 1945.

Lessons of war-time experience; rehabilitation, resettlement and physical training.

What lessons may we say fairly we have learned?

(1) *Coordination of treatment*

That successful rehabilitation depends upon a thorough coordination of all remedial measures, from the bedside through ambulatory convalescence and right up to final reinstatement.

(2) *Importance of convalescence*

That practitioners of civil medicine, forced to view as an urgent problem the admission of patients to hospital wards, on account of the shortage of beds, must learn that the reduction of the period of convalescence is an equally urgent matter both from the point of view of industry and from that of the patient's economic circumstances.

(3) *Assessment of methods of treatment*

That the medical profession must be prepared to study and disseminate knowledge on what are the most effective measures for rapid and complete restoration after disability, and must be prepared to condemn all personal idiosyncracies in regard to methods which are proved to be wasteful and less than fully effective.

(4) *Study of patient's employment*

That successful rehabilitation demands a thorough knowledge of all operations involved in the employment for which the individual is being prepared.

(5) *Psychological and social aspects of rehabilitation*

That successful rehabilitation involves the rehabilitation of the whole man.

It is quite hopeless to devote the whole of one's attention to the physical disability and do nothing about the psychological factors which may be involved.

(6) *Importance of job analysis*

It would seem to be important that the profession of medicine should busy itself now about the investigation of job analysis from a medical point of view, so that, among other considerations, its rehabilitation work shall be more purposeful and more scientific.

(7) *Individual resettlement*

Medicine must be prepared to advise on the capacity in which a permanently disabled person may be most adequately and usefully employed.

It is not sufficient that a man shall be trained for any kind of new avocation. He must be trained for an avocation which will employ him to the optimum, for this is of advantage both to the man himself and to production generally.

(8) *Importance of physical education*

Apart from the rehabilitation of the disabled and correct placement in employment there are other important questions which need emphasis. One of outstanding importance is the following.

The medical profession must be roused to take a very practical interest in physical education.

(9) *The study of the so-called "normal"*

All the foregoing merely emphasizes the outstanding underlying need of the present time. That need has been felt in some quarters for a long time and the experiences of war-time have merely served to underline its importance.

We must tackle the study of the so-called "normal."

Without a knowledge of what the normal range of posture, physique and development may be at varying age groups, how can we hope to be accurate in our diagnosis of the abnormal?

Lesions of Skeletal Muscles in Rheumatoid Arthritis (Nodular Polymyositis)

Gabriel Steiner, M.D., Hugo A. Freund, M.D., Bruno Leichtentritt, M.D., and Mark E. Maun, M.D. In THE AMERICAN JOURNAL OF PATHOLOGY, 22:1:126, January 1946.

Summary

1. The pathological findings reported in this paper comprise "nodular polymyositis." Together with previously reported perineuritis, it constitutes an essential lesion in rheumatoid arthritis, to be called nodular neuromyositis.

2. The muscular lesions are specific for rheumatoid arthritis, since they were seen in every one of the 9 cases of rheumatoid arthritis and since they were absent in control material from 196 routine autopsies of cases of other diseases and 7 selected cases in which pathological lesions in muscles could be expected.

3. The distribution of the lesions in small amounts of various muscles (gastrocnemius, other unidentified muscles of the legs (case 7), triceps, deltoid, pectoralis major, and rectus abdominis) taken at random, and the high incidence of the lesions in a minimal percentage of the entire skeletal muscular system indicate the wide spread of nodular polymyositis throughout the skeletal muscular system.

4. The muscular lesions fit into the general pattern of other lesions known in rheumatoid arthritis, such as those seen in the synovia and other tissues of the joints, in subcutaneous nodules, and in the perineurium of peripheral nerve trunks. They are all alike in their inflammatory and granulomatous nature. The muscular lesions differ from those seen in other diseases (myatonia congenita, muscle dystrophy).

5. The muscular lesions are not related spatially to lesions of the synovia, the periarticular tissues, the subcutaneous nodules, or of the peripheral nerves. They are concomitant but independent tissue reactions to the same unknown agent.

6. There is a definite pathogenetic relationship between nodular polymyositis and degeneration and atrophy of the muscle fibers.

7. From a clinical standpoint our pathological findings are important as evidence of the wide distribution of the inflammatory and probably infectious process throughout the body in rheumatoid arthritis.

The General Treatment of Arthritis

Loring T. Swaim, M.D., Boston, Massachusetts. In THE JOURNAL OF THE INDIANA STATE MEDICAL ASSOCIATION, 38:12:489, December 1945.

The first step in treating a hypertrophic joint is to rest it. In extreme cases it is beneficial to immobilize such a joint in a plaster cast for a week or more. After such a complete rest invariably the joint is painless and more movable; and as it is protected from further strain, the bony growth ceases.

Heat is always advisable in these cases, especially for older people whose circulation is poor because of arterial changes. Moist heat, if used regularly, stimulates sluggish circulation and relieves soreness and pain.

Diet does not seem to play an important part in curing degenerative joint disease, although in the case of overweight patients a diet low in carbohydrates and sweets is advisable.

Permanent relief from pain in the back, neck, hips, and knees, however, comes principally from correction of faulty posture which causes the strain. This is done by special rest positions and exercises.

As a tired person always droops into poor posture, the same positions and exercises are prescribed for these rheumatoid cases as were used in the treatment of the osteoarthritics, but for a different reason. Their poor posture must not be allowed to interfere with normal functioning of the abdominal viscera through crowding.

Taken morning and evening, these exercises aid digestion and stimulate circulation through the abdomen. The flat hyperextended position gives the heart, lungs, and diaphragm their best chance to function. A little explanation will make this routine clear to the patient, and he will cooperate fully.

There is no specific diet that can be prescribed for rheumatoid arthritis, although we know certain facts which help in planning a balanced diet. Dr. Ralph Pemberton has shown that many cases have low sugar tolerance; therefore, the diet should contain the minimum amount of sweets and carbohydrates.

The diet, therefore, should be well-balanced with protein, carbohydrates, and fats and should be rich in vitamins and minerals. In my experience extra vitamins are indicated, as most of these cases have been deficient for a long time, and their tissues change slowly even with large doses of vitamins.

In many cases gastric analysis shows a lack of hydrochloric acid, which may be the cause of the failure to absorb iron and vitamins. This acid should be supplied when indicated.

Acute Brachial Radiculitis: Course and Prognosis

G. Joly Dixon, M.D., Bubl., MRCP, T.B.S. Dick, MB Manc., MRCP. In THE LANCET, 2:22:708, December 1, 1945.

Clinical Picture

This article is based on a detailed study, over about two years, of 16 typical cases of acute brachial radiculitis seen either at an emergency hospital or, through the courtesy of Dr. Fergus Ferguson, at the Manchester Royal Infirmary. These cases all conform to the syndrome described by Spillane (1943), invariably starting with some pain in the root of the neck and shoulder region. Usually the pain is very severe, and often it complicates the course of an acute infectious fever or the convalescence from a surgical operation. Palsy often is not noticed for several days, in fact not until the pain begins to abate; then the patient usually finds he is unable to lift his arm. Muscular wasting follows close on the heels of the palsy and usually is extensive at the end of 14 days. An area of sensory loss, although not complained of by the patient, usually is found over the deltoid muscle. We found anhydrosis in the analgesic area in 3 of 6 patients, whom we subjected to powerful stimulation of sweating; normal sweating was observed in the analgesic area in the other 3 patients.

Treatment

Most of the Service patients were fitted with abduction splints very soon after the onset of the palsy. The civilian patients were given vitamin B_1 at various periods during the disability. Neither of these procedures appeared to alter the course of the disease in any way.

Summary

The course of 16 cases of rapidly developing painful dystrophy of the muscles of the shoulder girdle, attributed to brachial radiculitis, has been followed for a considerable period.

Ten cases have shown complete functional recovery in 8-18 months. Besides these, one was so far recovered at the end of 5 months that he returned to duty; a second with complete recovery on one side is recovering from a relapse on the other side; and a third is still showing slow recovery at the end of 2 years.

Of three cases that have been stationary or are deteriorating, one has very little disability; the diagnosis in a second is doubtful; and only the third has a severe residual disability.

Recurrences developed in five cases; two at the end of 6 weeks; two at 6 months; and one at the end of 5 years.

Posture

A. B. Appleton, M.D., Professor of Anatomy, University of London; Professor, Royal Academy of Arts. In THE PRACTITIONER, 156:931:55, January 1946.

Remedial Treatment

No attempt can be made here to embark on the wide subject of correction, i.e., of remedial treatment. It must suffice to draw attention to a few salient points. The primary site of disturbance must be ascertained. "Round shoulders" as a rule consist mainly in an undue flexion in the upper part of the thoracic spine. Again, the constant adoption of some posture may lead to changes in the degree of passive insufficiency in muscles (Appleton, 1941); thus the use of high heels leads to an increase of the passive insufficiency of the gastrocnemius muscles, and this may in turn produce strain on the arches of the foot if the high heels are suddenly discarded. If the shoulders are allowed to fall forward the pectoralis muscles shorten, and if attempts are then made to assume a "good" posture without correcting this secondary defect there will be a development of an unusual posture elsewhere, e.g., a lordosis or even a pronation of the foot. If a subject with a long curved back tries to straighten himself without guidance he will bring his head up by a forward displacement of the pelvis and a backward sway above the pelvis (Knudsen, 1927). Thus an important problem in the correction of postural deviations consists in avoiding the development of still other postural disturbances.

Conclusion

It must be emphasized that the general and detailed forms of the body are highly individual features, which render it impossible for all persons to assume identical attitudes. There is, further, good reason to believe that an attempt to approximate to a single standard correct

pattern of posture is undesirable from the aspect of functional efficiency. As Medea said of the search for the Golden Fleece, "The Golden Fleece may not be so valuable as you have thought." The search for the one correct and perfect posture may be even more difficult than that for the Golden Fleece. It can be stated, however, that certain postural variants are known to be caused by abnormal conditions in the body or by abnormal habits of life; and again, certain postural variants tend to the production of disabilities of various kinds. These can be ascertained, and further investigation should permit the determination of what is a "fault" in posture, and what are the limits within which a posture may correctly be termed "good."

The Management of Convalescent Soldiers

Lt.-Colonel Derek Levis, M.B., Royal Army Medical Corps, Officer Commanding a Convalescent Depot in the B.L.A. In JOURNAL OF THE ROYAL ARMY MEDICAL CORPS, 85:5:241, November 1945.

Physical Therapy

Patients who are considered to require such treatment as radiant heat, infra-red, U.V.L., massage and electrical treatment are retained in Grades I and II until the need no longer exists. At no time does any patient receive this type of passive treatment to the exclusion of all other forms of active remedial treatment. The two are naturally complementary and are run concurrently.

Cases of fibrositis, backache and similar conditions which have frequently received extensive physical therapy treatment during a prolonged stay in hospital are not unknown in this Depot. Such cases are, if it is humanly and humanely possible, kept out of the physical therapy department altogether, and class exercises with a manipulative flavor prescribed and executed instead. In any case those who receive physical therapy do the exercises as well.

It is quite amazing the amount of faulty posture and abnormal gait which is due to an hysterical element that is seen in such cases. It is equally satisfactory to see the improvement which can be effected with active exercises and firm handling.

The average Convalescent Depot is in a position to carry out considerable physical therapy treatment. It is, however, limited by the small establishment of physical therapists.

Rehabilitation of Patients Paralyzed Below Waist

D. Munro. In NEW ENGLAND JOURNAL OF MEDICINE, Boston, 233:453-484, October 18, 1945. Abstracted in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 130:5:310, February 2, 1946.

Munro asserts that a patient with a spinal cord or cauda equina injury who is intelligent and cooperative and has the use of the shoulder, arm and hand muscles can be made ambulatory, can have such control of the bladder and bowels as to sleep through the night without either getting up or wetting himself, can carry out ordinary activities throughout the day without soiling himself with feces or having to evacuate his bladder oftener than once every three hours, can lead a normal social life and can earn a living. This paper is the first of a series that describes certain therapeutic procedures that have made the attainment of these end results possible. The author has performed a bilateral dorsolumbar anterior rhizotomy on 10 patients. This bilateral intraspinal division of the anterior roots of the eleventh thoracic through the first sacral spinal nerve is recommended as a means of changing a spastic to a flaccid paraplegia in patients with an anatomic transection of the spinal cord at any point between the second thoracic and the second sacral segment preliminary to making the patients ambulant and to providing them with complete twenty-four hour control of micturition so that they may again become active members of their community and be self supporting. Because this operation is a permanently destructive one, the indications for performng it should never be considered lightly. For the present, at least, it should be strictly limited to patients in whom the spinal cord is anatomically transected and in whom all neural connections between the cut surfaces of the cord have been destroyed.

The Management of Rheumatoid Arthritis

Francis Bach, D.M., D.Phys. Med., Consultant in Rheumatic Diseases, London County Council; Assistant Medical Officer in Charge, Electrotherapeutic Department, St. Thomas' Hospital; Sector Consultant in Physical Medicine, E.M.S. In THE BRITISH JOURNAL OF PHYSICAL MEDICINE AND INDUSTRIAL HYGIENE, 8:6:170, November-December 1945.

In St. Stephen's Hospital the rheumatism unit is under the control of the physicians and orthopedic surgeon. The occupational therapist carries out the remedial diversional work prescribed for patients in the wards and for out-patients, and when they are ready for vocational training he selects the kind of training suitable to the individual. The physical therapists carry out physical treatment and supervise remedial exercises. They give electrotherapy and hydrotherapy treatment, massage and so forth. They apply splints and slings when these are prescribed. Food is carefully regulated by the dietitian, and the medical treatment is supervised by the ward sister. The radiological department and the pathological laboratory play an essential part in differential diagnosis. The various members of the team combine to treat the patient as a whole individual and not as a collection of separate parts. Part of the team also are the dental, the nose, throat and ear and other specialists.

A Clinical Test of Nerve Regeneration

Captain Howard B. Shreves, Medical Corps, Army of the United States, First Lieut. George Hawkins, Medical Corps, Army of the United States. In THE BULLETIN OF U. S. ARMY MEDICAL DEPARTMENT, 5:1:110, January 1946.

Following is a test useful in determining nerve regeneration relatively early following nerve suture and in differentiating between sensory recovery due to nerve overlap and recovery due to true regeneration of sutured nerves.

Blindfold the patient. Stimulate any proximal sensory area of the nerve in question with a painful stimulus, such as a sharp pin. Have the patient indicate with his free index finger exactly the point stimulated. The patient's response will be one of three: (1) He will point quickly and accurately to the stimulated point, which is characteristic for a normal area where no sensory loss has ever occurred. (2) He will point accurately to the stimulated area with some hesitation. This is characteristic of return in overlap areas, overlap areas being those areas of sensory recovery where the cause is other than regeneration of the sutured nerve. (3) He will point to a spot away from that of the stimulation. The point where he localizes the stimulation may be anywhere from 1 cm. to 40 cm. away from the point of stimulus. This is characteristic of recovery due to true nerve regeneration.

Observations on the Treatment of Infantile Paralysis in the Acute Stage

John A. Toomey, M.D., Professor, Clinical Pediatrics and Contagious Diseases, Western Reserve University, Cleveland, Ohio. In THE CANADIAN MEDICAL ASSOCIATION JOURNAL, 54:1:6, January 1946.

Summary

Let me summarize my impressions of treatment. Putting a patient in a fixed cast and keeping him there does not allow for maintenance of circulation and nutrition to the best advantage. Such treatment will probably do the patient harm; physical therapy and muscle reeducation cannot be started early enough.

No one has demonstrated that immobilization for short periods of time, a few weeks or so, harms the patient. If, in addition, the patient is given physical therapy daily, the results will be good. This has been conclusively demonstrated by the Baltimore group.

Good results can be secured with the Kenny treatment. Her patients are lax. Statistics may not always give a good idea as to the advantages conferred by her method, but here again the results are not due to any particular therapy but to persistent physical therapy and to the long time she is able to control the patient. The method is expensive, requiring a large number of nurses and technicians. This is beside the point, however, if it were perfect in all instances, but it too has its failures.

No matter what treatment is applied, the results will depend upon the enthusiasm, the knowledge, the patience and the perseverance of the individual who cares for the patient. Such an individual will get good results no matter whose method is employed. Of course, he must have the cooperation of the patient.

In brief, treatment should be in the hands of one who has patience and persistence and who employs good physical therapy.

Ultraviolet Lamps for Disinfecting Purposes: Present Status

W. W. Coblentz, Ph. D., D. Sc., Washington, D. C. In THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 129:17:1166, December 22, 1945.

The results of this investigation, which extended over a period of six months (December to May) are impressive and instructive in showing that the incidence of respiratory illness in the barracks irradicated with low intensity ultraviolet lamps followed the same undulations that occurred in the adjacent control barracks, whereas in the barracks irradiated with a high intensity there was a definite reduction in the incidence of respiratory illness—a reduction estimated at 25 per cent for the entire period of observation of respiratory illness in the high intensity irradiated group as compared with the control group, "and not due to chance." Hence, while ultraviolet radiant disinfection of air can be substituted for actual air displacement in reducing cross infection in chickenpox, measles and mumps, and with less certainty in reducing the incidence of colds, there is no evidence that will justify high pressure sales promotion of ultraviolet disinfecting lamps as a cureall or sureshot preventive of respiratory illness. Disinfection by ultraviolet radiation can serve a useful purpose, but it has its limitations. In this connection it is a satisfaction to record that at least one manufacturer is issuing to its salesmen and distributors a printed guide setting forth factual information regarding ultraviolet disinfecting lamps and some of their shortcomings. Whether this is for self protection (because an "employer need not ask an employee to cheat for him," as the vice president of one large lamp manufacturing concern once remarked to me, years ago) or for altruistic reasons, the booklet should serve a useful purpose in guiding overenthusiastic salesmen as well as the consumer.

Convalescence From Surgical Procedures: II: Studies of Various Physiological Responses to a Mild Exercise Test

Isaac Starr, M.D., Robert L. Mayock, M.D., and Marjorie G. Battles, Philadelphia, Pennsylvania. In THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES, 210:6: 725, December 1945.

By means of a standard mild exercise test we have sought for abnormalities during convalescence from surgical procedures.

Oxygen consumption, and volume, and rate of respiration have been determined before, during, and after standard exercise. Cardiac output (ballistocardiogram) and pulse rate were estimated before, just after, and 5 minutes after the same standard exercise.

Measurement of the magnitude of the changes induced by the exercise revealed no significant differences which could be attributed to convalescence. However, when attention was given to the duration of the changes induced by the exercise, the averages showed significant differences, the increased oxygen consumption, respiration, and pulse rate declining to the resting level more slowly during convalescence than before operation.

The respiration and oxygen consumption of subjects at rest were not significantly changed during convalescence.

The variability in the physiologic response to exercise was so large that a test of the type used gives no promise of providing a satisfactory measure of the duration of convalescence in individual cases. However, the slow return to normal of pulse rate, respiration, and oxygen consumption after exercise is over may have some value as an indication of persisting abnormality in certain individuals and will provide significant differences when data obtained from a series of 10 or more cases are averaged.

The Expanding Field of Physical Medicine

In PROCEEDINGS OF THE STAFF MEETINGS OF THE MAYO CLINIC, 20:26:497, December 26, 1945.

F. H. Krusen, M.D., Section on Physical Medicine: It is becoming more and more apparent that physical medicine is expanding rapidly and that in the future, it will encompass a broad and at present considerably neglected phase of medical practice. As defined recently by the Council on Physical Medicine of the American Medical Association, physical medicine includes the employment of the physical and other effective properties of light, heat, cold, water, electricity, massage, manipulation, exercise and mechanical devices for physical and occupational therapy in the diagnosis and treatment of disease. In one sense physical medicine is really applied biophysics.

As it is now developing, physical medicine is progressing into three major fields: (1) physical therapy and the employment of physical agents in diagnosis, (2) occupational therapy and (3) reconditioning of the convalescent patient. Physical agents are employed not only in therapy but also in diagnosis so that there are interesting developments not alone in the definitive treatment of disease by physical agents but also in the employment of physical procedures as an aid in diagnosis.

Thrombosis of the Deep Veins of the Lower Extremities

David I. Abramson, Major, M.C. In ILLINOIS MEDICAL JOURNAL, 88:6:298, December 1945.

Therapy in the Acute Stage. In the treatment of the acute stage of phlebothrombosis and thrombophlebitis, no unanimity of opinion exists. For practical purposes, the types of therapy can be divided into two groups, namely, conservative and radical measures.

Conservative Measures. Mechanical procedures: With respect to conservative therapy, the simplest procedure is elevation of the lower extremities. This is generally carried out immediately after the onset of the acute attack. Flexion of the hips should be avoided, and the feet should be kept higher than the face, both of which objectives can be achieved by raising the foot of the bed. This step helps to relieve the edema by favoring lymphatic flow. Heat may be applied at the same time, in the form of a heat tent or hot compresses, in order to increase the local blood supply and thus counteract the periphlebitis.

The use of compression devices, such as elastic adhesive plaster, Ace bandages, or Unna's boot, has a definite place in the treatment of thrombophlebitis.

After the application of the compression bandage, the patient is encouraged to move his legs. The possibility of dislodging a portion of the thrombus by such a procedure has been suggested, but this view does not seem to have been substantiated by clinical reports. As the signs of thrombosis disappear, exercise of the legs and thighs, preparatory to getting up, is increased.

Occupational Therapy and the Ageing Person

Louis J. Haas, F.A.A. and O.T.R., Director Men's Therapeutic Occupations, New York Hospital, Westchester Division, White Plains, New York. In THE WEST VIRGINIA MEDICAL JOURNAL, 42:1:13, January 1946.

In some near tomorrow, physicians and therapists will demonstrate that carefully adapted activities may be prescribed and used to aid all ageing persons. Such activities may not be called treatment programs. They will, however, furnish new sustaining interests designed to neutralize the demoralizing frustrations that frequently accompany growing older and retiring from more active life.

We should have collateral vocations during our active, middle years of life, so that we may replace the one with the other, should necessity arise. When we have to give up what we have been doing as a means of livelihood, life should not look like a blank wall ahead, but as an obstacle that we can overleap, outflank, or tunnel under with an associated asset or interest. In other words, we should develop in youth interests of more than one kind, which we may call hobbies, if you will, but which I prefer to call collateral vocations, which we may not develop to the extent that we do our actual business or profession, but which should be sufficient for us to consider as projects to work on when we can find the time in the later decades of life. They should be consistent, however, and not too taxing for oncoming physical infirmities. They should be more cerebral than muscular. They should lead us to the philosophy that life will never be long enough for us to accomplish all we want to do. We should feel we have never finished. When we cease to habitate the surface of this terrestial sphere, we should depart with the statisfaction that we have worn out rather than rusted out. Remember, the more you use you brain, the easier it becomes to do so.

Shock and Refrigeration

Lyman Weeks Crossman, M.D., and Frederick M. Allen, M.D., New York. In THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 130:4:189, January 26, 1946.

The unique simultaneous inhibition of pain, shock, exudation, infection, necrosis and intoxication recommends refrigeration as an ideal treatment for burns, which can also be combined with other treatments as desired. Plunging into cold water or applying ice not only gives the quickest emergency relief of pain and inflammation but also reacts most favorably on the later course.

The effective relief of sprains by superficial chilling with ethyl chloride can presumably be equaled by ordinary refrigeration, with the advantage of deeper penetration if desired. Anesthesia by refrigeration without a tourniquet, preferred by some surgeons for gangrene amputations, can serve for plastic and other superficial operations in nonsclerotic cases. Evidence in favor of ice application as part of the routine treatment of snake bite and of all envenomed bites and stings is the protracted absorption of penicillin from chilled areas and the protection of rabbits from lethal quantities of mustard gas.

Conclusions

Experimentation during the past six years has revolutionized the treatment of shock by substituting temperature reduction for the previous practice of warming, and replacing the former colloid or plasma concept with fluid therapy chiefly in the form of large volumes of salt solution.

Many forms of trauma can be benefited by the unique power of cold to control simultaneously pain, shock, exudation, infection, necrosis and formation and absorption of toxins. Specially important applications are to the treatment of burns and military surgery in general.

Conservative Treatment of Volkmann's Ischemic Contracture

J. G. O'Connell, F.R.C.S. (Ed.) In PROCEEDINGS OF THE ROYAL SOCIETY OF MEDICINE, 38:12:689, October 1945.

The observation that the flexion contracture of the fingers is diminished on palmar flexion of the wrist has been the basis of the various conservative methods of treatment employed in this condition. These have met with varying degrees of success, but the principle of gradual stretching of the contracted tissues would appear to have more foundation in theory than the various operative measures suggested, such as muscle slides, arthrodesis of wrist, etc.

It must be admitted, however, that in an appreciable percentage of cases conservative treatment alone is inadequate and it becomes necessary to resort to operation. The operation most in favor would appear to be fixation of the wrist in the optimum position.

It will be noticed that the three cases described are all children. The method has not been tried in an adult case, and it seems likely that the prognosis would not be as good. The muscles of childhood have greater elasticity and would seem more suitable for such methods of passive stretching. The number of cases treated to date is small and the end-results may not be as satisfactory in a larger series of cases, but it is felt that no case of Volkmann's contracture in a child should be submitted to operation without at least a trial of conservative treatment.

Physical Medicine in Industrial Injuries

Stafford L. Osborne, Ph.D., Associate Professor of Physical Medicine, Northwestern University Medical School. In INDUSTRIAL MEDICINE, 14:11:833, November 1945.

A tremendous impetus was given to physical medicine during and immediately after the first world war.

And now in another world war physical medicine is again playing an important role. The nature of today's war injuries, though more severe and numerous, is quite similar to that of industrial accidents. Therefore, since physical medicine has been found to be of value in war injuries, its value should be predictable in industrial injuries. Based on actual experience in the industrial accident field it is my opinion that physical medicine can be just as effective in decreasing time loss and in reducing the severity of permanent partial disability in the industrial field.

For example, physical medicine should prove of great value in the treatment of fractures. The circulation can be increased by the use of heat. The method of choice is the use of high frequency energy, preferably applied by the induction method. Although Blair states heat can cause bony atrophy and that massage is not indicated before complete bony union has taken place, Kellogg Speed, on the other hand, has shown that heat contributes to the production of a firmer union. In comparison with his control experiment, he states, "heat produced less bulky callous, less fibrous and cartilaginous callus but more mature bony callus." Freeman, Merriman and Osborne studied the effect of diathermy on the excretion of urinary calcium and inorganic phosphorous in five healthy male adults. The subjects were placed on a constant diet for seven days. Then for the following seven days the thigh of each subject was heated by inductothermy for one hour daily at the subject's maximum tolerance. In spite of this maximal test there was no significant alteration in urinary calcium or inorganic phosphorous. Schmitt has presented clinical evidence that heat produced by induction does not cause bone atrophy. His patients were given intensive inductothermy treatment. One patient with delayed union of nine months standing was given 82 two-hour treatments in 69 days. Thus it seems unlikely that bone atrophy is caused by heat produced in this manner. Unfortunately, heat has been applied too often without taking into consideration the pathology to be treated. Heat can be applied so as to produce an active hyperemia or to such a point that passive congestion results. Not only is dosage important but frequency of application must be given consideration in a prescription. For prolonged and frequent applications of short wave diathermy the induction field is the method of choice because of its physical adaptability to secure the desired distribution of power input, its applicability to all anatomic parts, and its established heating characteristics.

Every surgeon should know the elementary principles of massage. As long as there is danger of displacement of fragments he should personally administer massage and early motion.

The importance of a specific program of physiologic activity is becoming realized more and more by those responsible for the management of surgical patients. The institution of specific programs of active exercise soon after operation has been found extremely useful in preventing postoperative complications and in hastening postoperative recovery. With some one part immobilized, adjacent parts should be exercised. Therapeutic exercise is used to improve tonus of skeletal muscles and to counteract muscle weakness and muscle atrophy. Watson-Jones emphasizes this point in his recent book "Fractures and Other Bone and Joint Injuries."

Physical medicine has a very definite place in the treatment of peripheral nerve lesions. The value of muscle reeducation is fully appreciated. An outstanding book dealing with this work is "The Action of Muscles," by Colin McKenzie. Massage, too, has been assigned a definite role, although from the work of Weddell, Feinstein and Pattle it appears we might have to change its technic application. The use of heat in the treatment of nerve lesions has not had such universal acceptance because of the sensory changes so likely to be present. However, in 1942, Bauwens stated: "Provided the circulation in a paralyzed limb is capable of being accelerated, a rise in temperature and efforts to keep this near to the normal constantly are indicated, in order to promote repair, facilitate movement and increase excitability. This is best achieved by warming the limb in the high frequency field provided by coil electrodes. It is not enough to warm merely the affected cold part of a limb, as much as possible of the portion above the level should be treated so as to enhance the circulation generally." He further states treatment should be given twice daily and every effort made to prevent heat loss between treatments.

The value of stimulating the denervated muscle by electrical currents was first demonstrated and reported by Reid in 1841. Within the last four years evidence has been presented by Fischer, Solandt, Hines, Grodins, Osborne and Ivy and Gutmann and Guttmann showing that electrical stimulation of the denervated muscle can markedly diminish the rate of atrophy and loss of strength. At present similar work is being done on the denervated muscles of patients at our own medical school. To be effective in retarding muscle atrophy and loss of strength the following factors must be observed: (1) a modulated A.C. with the proper carrier frequency must be used; (2) vigorous exercise is essential, i.e., work must be done by the muscle; (3) long periods of stimulation—broken up in several sessions—are necessary; (4) treatment must be started early; (5) a tetanic type of contraction must be obtained to secure maximal tension of the fibers stimulated.

Balneotherapy of Traumatic Nerve Infections

Kulkov, A. E. and Ogarev, V. N., In NEUROPATOLOGIYE I PSIKHIATRIYA, 1943, Vol. XII, No. 3 part II, pp. 67-70. Abstracted in AMERICAN REVIEW OF SOVIET MEDICINE, 3:2:180, December 1945.

Thirty-two cases of peripheral neuritis, including 8 cases of polyradiculitis with dissociation of albumin and cells in the cerebrospinal fluid (Guillain-Barre syndrome) are reported. They were treated with mud in addition to ordinary physical therapy and vitamin B_1 injections. Patients were usually seen 1-3 months after onset of the disease, and received a course of 20-25 mud treatments, at a temperature of 40-46 degree C., three times weekly. All the patients recovered and the time required was considerably less than a similar group treated the same way but without mud application.

Backache

Henry W. Meyerding, M.D., and Forrest L. Flashman, M.D., Fellow in Orthopedic Surgery, Mayo Foundation, Rochester, Minn. In THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 130:2:76, January 12, 1946.

The majority of our patients have been treated conservatively with supports to the back, rest, sleeping on a firm bed, application of heat and massage to the back and exercises to strengthen the muscles of the back.

Patients who have not responded to conservative treatment have made good progress following fusion of the spinal column by means of double bone grafts inserted over the portion in which the defect is situated, an operation which has been described by one of us (Meyerding). Defects of the isthmic zone are also one of the criteria for bone grafting in cases in which surgical removal of a herniated disc is done.

In this article is called to the attention of the medical profession a fairly common lesion of the spinal column that is responsible for low back pain and to reemphasize the importance of the oblique roentgenogram in determining the diagnosis in cases in which the patient has obscure backache and a weak, unstable back. Treatment is directed toward increasing the stability of the lower part of the spinal column.

The Treatment of Crushing Injuries of the Extremities

Southgate Leigh, Jr., M.D., Norfolk, Virginia. In VIRGINIA MEDICAL MONTHLY, 72:12:521, December 1945

Summary

1. Crushing injuries of the extremities produce as extensive shock as severe burns.
2. This shock should be treated as carefully as burn shock, using hematocrit or blood specific gravity levels to determine the amount of plasma that is necessary to balance the hemoconcentration.
3. A tourniquet must be kept on the crushed limb to prevent absorption.
4. All other factors that contribute to anoxia or shock; i.e., excessive morphine, lowering head of table, excess heat and general anesthetics must be eliminated during shock.
5. Refrigeration anesthesia is the choice for operation under these circumstances, and, we believe, will save many lives.

Pulley Exercises to Increase Joint Movement

George G. Deaver, M.D., and Lieut. Kjell J. Peterson. In ARCHIVES OF PHYSICAL MEDICINE, 27:1:23, January 1946.

Summary

1. The exercises are specifically designed to serve as a method for increasing the range of joint motion and to minimize muscle spasm, which usually occurs.
2. They are completely under the patient's control, and therefore the chances of injury to the joint are minimized.
3. Constant supervision is not necessary.
4. The apparatus is simple and easily obtainable.
5. The progress is recorded on charts and posters, and the patient competes against himself and against patients with the same disability.

The Action Spectrum of Sensitization to Heat With Ultraviolet Light

Arthur C. Giese and Elizabeth B. Crossman (From the School of Biological Sciences, Stanford University). In THE JOURNAL OF GENERAL PHYSIOLOGY, 29:2:87, November 20, 1945.

Summary

1. Heat does not sensitize paramecia to ultraviolet light but ultraviolet light sensitizes them to heat. Paramecia of two species (Paramecium caudatum and P. multimicronucleata) are much more readily killed by heat at 42.3 C. if they are first exposed to ultraviolet light.
2. From studies on paramecia irradiated with a given dosage at various wave lengths before being killed by heat, an action spectrum of the compound in the protoplasm being sensitized to heat can be determined. Proteins with absorption similar to that of pseudoglobulin are suggested by these experiments.
3. The effect upon living things differs from that on pure protein systems in that paramecia are not rendered more sensitive to temperatures below the lethal temperature whereas proteins are.
4. Almost complete recovery from ultraviolet light as judged by heat sensitivity occurs within 4 to 5 days.
5. By a study of the rate of recovery from doses at different wave lengths evidence suggesting effects on nucleic acid is obtained.
6. The possible significance of the data and the action spectrum is discussed.

The Conservative Treatment of Chronic Suppurative Otitis Media

R. Scott Stevenson, Major R.A.M.C. and J. Chalmers Ballantyne, Captain R.A.M.C. In THE JOURNAL OF LARYNGOLOGY AND OTOLOGY, 60:4:166, April 1945.

The method of ionization was introduced by Leduc and is based on the principle that by bringing active zinc ions into contact with the bacteria that flourish in and keep up the aural discharge a solution of zinc sulphate weak enough to be completely nonirritating to the living tissues will act as an effective germicide. Once the bacteria are destroyed, the discharge ceases and the tissues recover.

Many conflicting reports have been published as to the efficacy of treatment of chronic suppurative otitis media by zinc ionization, but we record two illustrative cases and feel that they will support our contention that the method is always worthy of trial when dry methods have failed. The technic we employed in these cases was perforce somewhat improvised, as the approved apparatus was not complete. The ear was first mopped clear of all discharge and debris with cotton wool on a Jobson Horne probe. It was then gently syringed with a warm 1 per cent solution of zinc sulphate at body temperature and the meatus again mopped. A log strip of half-inch ribbon gauze, wrung out in a 1 per cent solution of the sulphate, was then introduced right down to the drumhead and firmly packed. The electrode was placed on the gauze packing as it presented at the entrance to the meatus, and a current of two milliamperes was used over a period of ten minutes. The treatment was given three times a week.

We have recorded, in this paper, details of the treatment of thirty-two cases of chronic suppurative otitis media by dry methods, and the results obtained have been summarized in the tables. Sulphathiazole ascorbate has so far yielded the most encouraging results, but we feel that they may be further improved by a more stable compound of penicillin with a sulphonamide.

Two illustrative cases of treatment by zinc ionization also have been recorded, and by a combination of the dry and the wet methods, it has been necessary to submit only three patients out of a total of one hundred and ninety-five to surgical measures.

Effect of Fatigue, Chilling and Mechanical Trauma on Resistance to Experimental Poliomyelitis

S. O. Levinson, A. Milzer and P. Lewin. In AMERICAN JOURNAL OF HYGIENE, BALTIMORE. 42:107-224, Sept. 1945. Abstracted in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 130:3:174, January 19, 1946.

Levinson and his associates found that monkeys subjected to exhausting exercise or to chilling during the incubation period of experimental poliomyelitis developed a higher incidence and more severe paralysis than controls. Monkeys subjected to trauma of one or more limbs during the incubation period of experimental poliomyelitis showed no correlation with the location of the paralysis, and the severity and extent of paralysis did not differ from the controls. The incidence and severity of paralysis was significantly greater in monkeys inoculated with the virus during the summer months.

Treatment of Rheumatic Fever

Newell C. Gilbert, M.D., Chicago, Illinois. In THE JOURNAL OF THE INDIANA STATE MEDICAL ASSOCIATION, 38:4:124, April 1945.

There is one thing that does help, and that is summed up in a report of the British Medical Research Council as "Maternal Care." Maternal care means an adequately planned diet, proper rest before and after meals, and adequate sleep.

Various sulfonamides, and especially sulfanilamide, have been used in daily small doses over long periods of time as a prophylactic agent against upper respiratory infections and the resulting recurrence of rheumatic fever.

The most important demand in the treatment of rheumatic fever is its immediate recognition and immediate care and bed rest, even with the mildest symptoms. The bed rest must be absolute and continuous.

During the initial infection, or the early stages of recurrence, patients can be at home or in the hospital for study and intensive treatment. After the early stages they should be in a convalescent home, built and planned and operated for this purpose. The city hospital does not meet the requirements. We should avoid the hospital atmosphere.

The convalescent home should be far enough out of the city to insure an abundance of sunshine from which the actinic rays have not been filtered out by city dust and smoke.

Peripheral Neuritis (Polyneuritis, multiple symmetrical peripheral neuritis)

F. M. R. Walshe, M.D., F.R.C.P. Physician, National Hospital, Queen Square; Physician in charge of Neurological Department, University College Hospital. In THE PRACTITIONER, 156:931:25, January 1946.

Treatment—Despite the strident clamor of those who find in vitamin administration the answer to so many therapeutic problems, it cannot be overemphasized that the two essentials in the treatment of polyneuritis are rest and a nutritious and abundant diet. It goes without saying that when an exogenous poison is in question, such as alcohol, abstention from it is essential, and no half-measures should be tolerated.

If, despite the consistent disillusionments of the past twenty years, it is desired to give vitamin B, the whole complex should be given, and not B_1 (aneurin, thiamin) alone. It may be given as half an ounce daily of brewer's yeast and supplemented by thiamin parenterally or by mouth, and in large doses. My own view is that strychnine is more effective, given in doses of 1/30 to 1/15 of a grain by mouth, twice or thrice daily. Pain may be relieved by aspirin and codeine, or phenacetin. While the limbs remain painful it is best to be content with seeing that they are kept in good position by sandbags and splinting, massage and active exercises being given when the acute and advancing phase of the illness is past. The necessity of an initial period of rest in even the mildest cases cannot be overstressed. This often will prevent the further development of the weakness. Mobilization of the patient must await the beginning of improvement and the settling of the heart rate to normal limits. With these measures a good result can be looked for.

Book Reviews

A Manual of Surgical Anatomy. *By Tom Jones, Professor of Medical and Dental Illustration and Head of Department of Illustration Studios, University of Illinois Medical School, and W. C. Shepard, Art Editor, W. B. Saunders Company. Prepared Under the Auspices of the Committee on Surgery of the Division of Medical Sciences of the National Research Council. Cloth. Price, $5. Pp. 254, with 267 illustrations, 153 in colors. Philadelphia: W. B. Saunders Company, 1945.*

The primary purpose of this manual, like its predecessor which was brought out in 1918 by the Office of the Surgeon General of the United States Army, was to furnish the Medical Departments of the Army and Navy with a surgical anatomy in compact form.

It consists mainly of beautiful illustrations simply and completely labeled, arranged regionally. There is an explanatory index of over one hundred pages, which, where the anatomic names differ, gives both Standard English and B. N. A. terms.

This manual can be highly recommended not only to the surgeons of the armed forces but to civilian surgeons as well. Physical therapists will find it a useful reference book in anatomy.

A Handbook of Psychiatry. *By Louis J. Karnosh. With the collaboration of Edward M. Zucker. Cloth. Price, $4.50. Pp. 302. St. Louis: The C. V. Mosby Company, 1945.*

This small textbook of psychiatry has been written primarily for the use of general practitioners. It is intended to serve as a source of easily accessible information so as to be able to establish a working diagnosis.

There are brief chapters on all the usually encountered psychiatric entities. The discussion on each is ample for the purpose. The sections on psychoneuroses are accurate and simple enough so as not to overwhelm a novice with unnecessary technical verbiage. The orientation throughout is on therapeusis and the authors are wise to point out the general patterns of therapy, even indicating which situations are difficult to influence. There are chapters dealing with physical therapy, occupational and recreational therapy, shock therapy, psychiatry and the law and mental hygiene.

The book is well illustrated. The case examples are well chosen. The language is simple and direct. The psychiatric concepts used are those usually accepted today and there has been no neglect of the organic states. Although there are many small books of psychiatry for the purpose as outlined by the authors, one must consider that this is a particularly meritorious effort. It brings the available information up-to-date in a concise usable form.

Hospital Care of the Surgical Patient: A Surgeon's Handbook, with an Appendix on the Treatment of Wounds. *By George Crile, Jr., M. D., Surgeon, Cleveland Clinic, and Franklin L. Shively, Jr., M. D., Assistant Surgeon, Cleveland Clinic. Foreword by Evarts A. Graham, M. D., Bixby Professor of Surgery, Washington University School of Medicine, Saint Louis. Second Edition. Cloth. Price, $3.50. Pp. 288. Springfield, Illinois: Charles C Thomas, 1946.*

This book combines in one small volume the clinical, physiological and technical principles of the hospital care of the surgical patient. It is concise and clearly written. The practical discussions will enable the young surgeon to recognize more easily and quickly the common post-operative complications. The line drawings show details of operative and other procedures. The procedures recommended are those which are employed in the best surgical clinics. The routine technical procedures are based upon recent advances in physiology and chemotherapy.

This is a book no intern can afford to do without. The discussions of the relationships of the House Officer to the patient and his relatives, to the nurses and to the attending surgeon are invaluable. Although this book is intended chiefly for the use of those who are about to begin their period of graduate study of surgery, older surgeons also will find it helpful.

The 1945 Year Book of Physical Medicine. *Edited by Richard Kovacs. M.D., Professor of Physical Medicine, New York Polyclinic Medical School and Hospital; Attending Physical Therapist, Manhattan State, Harlem Valley State, Columbus and West Side Hospitals; Visiting Physical Therapist, New York City Department of Correction Hospitals; Consulting Physical Therapist, New York Infirmary for Women and Children, Mary Immaculate Hospital, Jamaica, N. Y., St. Charles Hospital, Port Jefferson, L. I., Hackensack Hospital, Hackensack, N. J., and Alexian Brothers Hospital, Elizabeth, N. J. Cloth. Price, $3. Pp. 400, with 106 illustrations. Chicago: The Year Book Publishers, Inc., 1946.*

This popular year book, as in past years, brings to our attention the number of significant developments that have occurred in a year in physical medicine. Part I considers hyperthermy, hypothermy, electrotherapy, light therapy, hydrotherapy, spa therapy, climatotherapy, mechanotherapy, occupational therapy, and institutional work. The second part is devoted to applied physical therapy in cardiovascular conditions, peripheral vascular disease, respiratory conditions, arthritis, traumatic conditions, backache, foot conditions, paralysis, neurologic, mental, gynecologic, urologic, dermatologic, opthalmologic and otorhinolaryngologic conditions.

In the evalution of the new material Kovacs has done good work in this book, and has made each article concrete and plain. The book is replete with clear and interesting illustrations. It is printed on good paper, the type is clear and easy on the eye. It can be recommended to everyone interested in physical medicine.

Physical Chemistry of Cells and Tissues. *By Rudolf Hoeber, University of Pennsylvania School of Medicine. With the collaboration of David I. Hitchcock, Yale University School of Medicine, Laboratory of Physiology; J. B. Bateman, Mayo Clinic; David R. Goodard, University of Rochester, Biological Laboratories, and Wallace O. Fenn, University of Rochester, School of Medicine and Dentistry. Cloth. Price, $9. Pp. 676, with 70 illustrations. Philadelphia and Toronto: The Blakiston Company, 1945.*

According to the preface "the subject of the book is physiology; not physiology from above but physiology from below." This expresses very well the merits of this most unusual book. It treats the fundamental biophysical concepts on which all physiology and especially physiology of nerve and muscle should be based. Physical therapists will be particularly interested in Fenn's section on the physiology of contraction. This undoubtedly is the best review of a difficult subject in existence today. With almost 350 references to the literature this section gives a superior treatment of the difficult subject of modern muscle contraction theories. Equally interesting are the chapters on membranes and membrane potentials. The book opens with a discussion of the fundamental principles involved as an introduction to succeeding chapters, and it contains an excellent discussion of the properties of large molecules and of the properties of films and membranes. All in all this is a book that no one who is interested in the fundamentals of biophysics can afford to miss.

The Care of the Aged (Geriatrics). *By Malford W. Thewlis, M.D., Attending Specialist, General Medicine, United States Public Health Hospitals, New York City; Attending Physician, South Country Hospital, Wakefield, R. I.; Director, Thewlis Clinic; Special Consultant, Rhode Island Department of Public Health. Fifth Edition. Cloth. Price, $8. Pp. 500, with 65 illustrations. St. Louis: The C. V. Mosby Company, 1946.*

The causes of aging are still obscure—so are the causative factors of cancer, yet we treat cancer. When the aging processes will be fully clarified is still a matter of speculation, but it is now known that pathologic processes are often modified in senescence, but that they may present in the aged a different clinical picture from that in younger persons.

The text of this edition contains many alterations. Added material includes: geratology; stress and longevity; prevention of coronary thrombosis in physicians; congestive heart failure, venous pressure, mental hygiene, psychotherapy and other subjects. Preventive geriatrics is stressed.

The only diseases still on the increase are cancer, diabetes and the degenerative diseases of old age. By the successful application of the principles of preventive medicine and physical medicine, the physician may be able to eliminate certain pathologic probabilities before the symptom stage is reached. For instance, lack of exercise is an important factor in premature aging. Exercise has a beneficial effect on the circulation and appetite and a psychological value. This exercise should be directed by a physician interested in physical medicine, because many exercises have been recommended but most of them are too strenuous for the aged.

Regulated exercises are required for the bedridden patient and massage for the lower extremity is advisable. Exercises should be taken daily to prevent thrombophlebitis. As exercise should be regulated by a physician interested in physical medicine—so should rest.

Mental relaxation is necessary for elderly persons and recreation in one form or another should be provided. Ill planned recreations mean only stress and strain. The author emphasizes these and many other points that make this book valuable to the physician interested in physical medicine. Preventive geriatrics should include exercise, massage, recreational and occupational therapy.

Surgical Treatment of the Motor-Skeletal System. *Supervising Editor, Frederic W. Bancroft, A.B., M.D., F.A.C.S., Associate Clinical Professor of Surgery, Columbia University; Attending Surgeon, New York City and Beth David Hospitals; Consulting Surgeon, Veterans' Administration, Lincoln and Harlem Hospitals, New York; Kings Park State Hospital, Kings Park, New York. Associate Editor, Clay Ray Murray, M.D., F.A.C.S., Professor of Orthopedic Surgery, College of Physicians and Surgeons, Columbia University; Attending Surgeon and Chief of the Fracture Service, Presbyterian and Vanderbilt Clinics, New York City; Consulting Surgeon, Hackensack General Hospital, Hackensack, New Jersey; Sharon Hospital, Sharon, Connecticut and St. Joseph's Hospital, Far Rockaway, New York. Cloth. Part One: Pp. 612, with 521 illustrations. Part Two: Pp. 639, with 543 illustrations. Price, $20 for the two volumes. Philadelphia: J. B. Lippincott Company, 1945.*

This is a work on surgical treatment, and no attempt has been made, in general, to present the diagnostic problems or the etiology. There are forty-three authors, authorities in the field about which they write. Part one presents deformities, paralytic disorders, muscles, tendons, bursae, new growths, bones, joints and amputations. The second volume discusses fractures, dislocations, sprains, muscle and tendon injuries, birth injuries and military surgery.

The material indicates what to do, when to do it, how to do it, and what not to do for the various conditions affecting the motor-skeletal system. The subject matter is grouped, insofar as is possible, according to the types of disturbance involved, and the individual contributors have been given great latitude in the expression of their personal opinions and preferences. This leads, in some instances, to seemingly contradictory opinions by the various contributors on treatment rationale. These apparent contradictions are discussed in the text or in a section in the second volume on general considerations. There is some duplication in the description of operative procedures but a cross reference to such duplication is given and the editor has enclosed his interpolated remarks within brackets. The illustrations are excellent.

These volumes can be highly recommended to the average general surgeon and orthopedic surgeon who has to deal with lesions involving the motor-skeletal system. They can be used by physical therapists as reference volumes for all procedures, operative as well as non-operative, utilized by the surgeon in the care of the individual conditions included in the text.

The Embryology of Behavior: The Beginnings of the Human Mind. *By Arnold Gesell, M.D., Ph.D., Sc.D. In collaboration with Catherine S. Amatruda, M.D. Cloth. Price, $5. Pp. 289, with illustrations. New York & London: Harper & Brothers, 1945.*

In this book the author attempts to point out the behavioral development of the infant as being just as genuinely a pattern as is the somatic development. The two keep a very close pace. In addition to the familiar factors of embryology he discusses other more dynamic factors. The early appearance of postural reflexes and the behavior of the fetus at various ages up to birth are described. This is followed by chapters on breathing behavior at birth and the development of muscle tonus. There is an interesting chapter on electronic integration. The remainder of the book deals with postnatal development of behavior, ending with the "hierarchical continuum" in which the psychic sphere is the top level. There is an added section which is a photographic description of behavior patterns, a valuable asset to the book.

Although the book is not written in simple language it makes interesting reading. It is a valuable addition to the literature on the study of behavior.

Modern Urology for Nurses. *By Sheila Maureen Dwyer, R. N., B. S., Director of School of Nursing and Nursing Service, Southampton Hospital, Southampton, N. Y.; formerly Supervisor J. Bentley Squier Urological Clinic, Presbyterian Hospital, Instructor in Urological Nursing, Department of Nursing, College of Physicians and Surgeons, Columbia University, New York City, and George W. Fish, M. D., Associate Professor of Urology, College of Physicians and Surgeons, Columbia University, New York City. Second Edition. Cloth. Price, $3.25. Pp. 287, with 66 illustrations. Philadelphia: Lea & Febiger, 1945.*

This book gives the nurse a working knowledge of urological diseases and helps her to carry out her duties intelligently. It presents the fundamentals of anatomy, physiology and pathology of the organs of the male and female urinary system and of the male reproductive system. It emphasizes proper urological treatment and nursing care.

This second edition shows how the use of penicillin and sulfonamides in the treatment of urological infections has required changes in nursing care. The sections on ureteral transplants have been greatly expanded and new material on the diagnosis and treatment of cancer of the prostate has been included.

This book is easy to read and to understand because it is written in nontechnical language. It can be recommended as a textbook for student nurses and for instructors in schools of nursing, because it gives a teaching method that is eminently satisfactory.

Somatic Methods of Treatment in Psychiatry. *By William Sargant and Eliot Slater. Cloth. Price, $2.50. Pp. 171. Baltimore: The Williams and Wilkins Company, 1944.*

In these days of shock treatment in psychiatry there is a tendency to use it as a cloak to cover all evils. This timely book is intended to point out the pitfalls in such haphazard therapy with any type of somatic approach. The authors have made no pretense to cover all aspects of therapy—perhaps they would do well to do so in the future. They have confined their book to therapy with which they have personal experience.

The introductory chapter is a valuable presentation of the multiple approach to psychiatric treatment. The value of even partial results in the treatment of psychotics is well stated. Subsequent chapters deal with the conventional treatments of today, primarily insulin and convulsive. Other chapters discuss the treatment of cerebral dysrhythmia; chemical sedation; sleep treatment; dietary problems; prefrontal leucotomy and finally the malaria treatment of general paralysis.

In each section one finds unequivocal statements regarding indications and contraindications for the various therapies. There are just sufficient statistics to acquaint one with what to expect. Everywhere an attempt is made to point out limitations of therapy and always the orientation is to salvage what one can out of even the badly diseased personality. The book is well written and highly informative. It presents the fairly well accepted attitudes by the average psychiatrist regarding somatic treatment and makes a lucid appeal for the combining of this with sensible psychotherapeutic procedures. It is to be highly recommended for physicians interested in psychiatric treatment.

Conditioning Exercises for Girls and Women. *By Anne Schley Duggan, Director of the Department of Health, Physical Education and Recreation at the Texas State College for Women, Denton, Texas; Mary Ella Montague and Abbie Rutledge. Cloth. Price, $2.50. Pp. 116, with illustrations. New York: A. S. Barnes and Company, 1945.*

This book describes ninety-eight exercises, based upon sound principles of psychology, anatomy, kinesiology and physiology. Many of the exercises are illustrated by clever line drawings and the music of suitable piano accompaniments is given. The following topics are completely covered: lesson plans and outlines; suggestions for demonstrations; methods of organizing, conducting and evaluation and conditioning exercises.

This volume can be recommended as a sound practical volume of specially designed exercises to help every girl and woman to keep fit and stay trim. It is of value also as a teacher's reference and as a text for major students in physical education.

Laboratory Manual for Elementary Physiology. *By Lalia V. Walling and Kenneth Siler. Fourth Edition. Price, $1.50. Pp. 87, with 16 illustrations. St. Louis: The C. V. Mosby Company, 1945.*

Instructors concerned with the problem of giving laboratory work in physiology for various types of elementary classes will be interested in this neatly planographed and carefully written collection of experiments. The form is that of a work-book, with blanks to be filled in by the owner, drawings to be labelled, and so on. It would be useful in a class doing considerable anatomy and chemistry, though less useful in places where these subjects are separately taught and where there are facilities for more of the strictly physiological experiments on mammals including man. There is little material on endocrinology and none on reproduction, the emphasis being mainly on circulatory, respiratory, neuromuscular and digestive phenomena.

Pathology in Surgery. *By N. Chandler Foot, M.D., Professor of Surgical Pathology, Cornell University Medical College; Surgical Pathologist, New York Hospital. Cloth. Price, $10. Pp. 511, with 368 illustrations in black and white and 20 subjects in full color. Philadelphia: J. B. Lippincott Company, 1945.*

The surgical pathology of those disorders in which operations are carried out and organs or other specimens removed either as a remedial measure or for the specific purpose of obtaining biopsies leading to pathologic examination and diagnosis is discussed in this book. The material falls into four categories: (a) trauma; (b) developmental anomalies; (c) inflammatory lesions, and (d) tumors. Dr. Howard T. Karsner's "Human Pathology" was the model for this book and it is published in a format uniform with that of his textbook as a sort of ancillary volume. The material provides the surgeon with confirmation in making vital decisions affecting postoperative conditions. The author tells clearly and precisely what may happen to the patient as a result of any given lesion. The illustrations are original and excellent, and bring out the important points discussed in the text.

The needs of the pathologist, surgeon, intern and student are met by this book. It is a thorough coverage of the close relationship between the pathologist and surgeon in the operating room, surgical ward and the pathologist's laboratory. Doctor Foot establishes the significant place occupied by pathology in surgery.

Men Without Guns. *By DeWitt Mackenzie, War Analyst of the Associated Press. Descriptive Captions by Major Clarence Worden, Medical Department, United States Army. Foreword by Major Norman T. Kirk, Surgeon General, United States Army. Cloth. Price, $5. Illustrated with 137 plates from the Abbott Collection of Paintings owned by the United States Government. Philadelphia: The Blakiston Company, 1945.*

This book records the great work of the Army Medical Corps in the War. In words and pictures the story is told of the services of our physicians, nurses and enlisted men on the battlefields and in the hospitals of Europe and Asia. It is packed with the dramatic tenseness and excitement of modern warfare. It gives an authentic account of the men who fought without guns to save human life rather than destroy it.

A dozen American artists braved the hardships and perils of war to make this notable series of historical paintings. The plates in this book made from these paintings are beautiful. This book is out of the ranks of the ordinary and will be of interest to everyone in the medical field.

Jobs for the Physical Handicapped. *By Louise Neuschutz. With a Foreword by William Rush Denton, Jr., M. D. Cloth. Price, $3. Pp. 240. New York: Bernard Ackerman, Inc., 1944.*

Opportunities available to civilians and to veterans of the war with physical handicaps are presented in this book. An exhaustive list of vocations open to the handicapped is presented with detailed information on training, related reading and the methods of starting and working in the various fields.

The author has worked under the handicap of deafness, and she has long been recognized as a leader in the work of providing opportunities for a useful life for all. The many occupations which the author has listed should prove suggestive, and a part of the treatment ought to consist of a reading of this book, so that thought may be given to the problem and hope encouraged.

Those connected with rehabilitation agencies, social workers and disabled civilians and veterans should find this book very helpful.

Better Teaching Through Testing: A Practical Manual for the Physical Education Teacher. *By M. Gladys Scott, Ph. D., Associate Professor of Physical Education, State University of Iowa, and Esther French, Ph. D., Professor of Physical Education, Head of Department of Physical Education for Women, Illinois State Normal University. Cloth. Price, $2.50. Pp. 247, with 43 illustrations. New York: A. S. Barnes and Company, 1945.*

Physical education has reached the stage where individual diagnosis is recognized as an essential step in the teaching process. Testing is important as an integral part of individual diagnosis. This book gives a non-technical discussion of the testing procedure. All the tests included have been validated on some group, and have been used with other groups and are known to be reasonably satisfactory. The majority are of recent origin and many have not appeared elsewhere in literature.

There are carefully selected tests of general motor ability, sports, fitness; suggestions for achievement charts; ratings in diving, dance, posture and similar activities. The testing program is shown to be of real importance by its practical use and application.

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